Ana Clara Caleiro Coelho de Carvalho

Licenciada em Ciências da Engenharia e Gestão Industrial

Digital Startups Accelerators: Characteristics and Evolution Trends

Dissertação para obtenção do Grau de Mestre em
Engenharia e Gestão Industrial

Orientador: Professor António Grilo, Professor Auxiliar com Agregação, FCT-UNL

FACULDADE DE CIÊNCIAS E TECNOLOGIA
UNIVERSIDADE NOVA DE LISBOA

Setembro de 2016

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Dedicated to my aunt Manuela and grandmother Júlia

Acknowledgments

Some people have been most helpful during the development of this master dissertation and I would like to thank them in a very special way.

To my supervisor, Professor António Grilo, I would like to thank for his help, support, guidance and availability during the development of this thesis.

To Professor Aneesh Zutshi and Professor Joaquim Pina, for their support throughout the entire time.

To Beta-i team, I would like to thank for having welcomed me into the company and having helped during my process of understanding the accelerator sector.

To my parents, Clara and António, I would like to thank for always having supported me and for having believed in me ever since I was a little child. My accomplishments are yours too, because it is due to both of you that I have become the person I am today.

To my cousin Telma, I would like to thank for her friendship and support.

To my dearest friends Francisco, João, Jessica, Maria, Matilde, Mariana, Beatriz, Joana and Susana, I would like to thank for cheering me up in the bad times and making me laugh until my stomach hurts.

To Professor Ayana Mateus, whom I met when I had 'Probabilidades e Estatística', I would like to thank for her friendship and for always having been nice to me ever since the first class.

To Professor Ruy Costa, I would like to thank for having given me access to documents related to statistical analysis.

Finally, I would like to dedicate this dissertation to two very special people who will always have a special place in my heart: my aunt Manuela and my grandmother Júlia. I am sad they are no longer here, but I am sure they would be extremely proud of me at this important moment of my life and they would love to read this dissertation, just as they used to read the stories I wrote as a child.

Abstract

In a period where economies face challenges on a global scale, entrepreneurship is an alternative and viable option for many people. Due to the considerable impact it has on the economic development of a region, many authors have studied this subject throughout the years, so the literature available is quite rich and complete.

Entrepreneurial ecosystems include numerous entities that interact with each other in unique symbiosis relationships and these entities may be startups, universities, the government, investors and organizations that provide support to the startups in their development stages, such as accelerators, incubators and co-working spaces. However, some of these entities, especially the startup accelerators, are still very recent, since the first one was only launched in 2005. For that reason, there still is not an in-depth study on this subject and there are not many rigorous conclusions with regards to the nature and impact of these organizations, that are believed to play a very important role in the development of startups.

Therefore, this dissertation is motived by that lack of rigorous knowledge on the subject of accelerators. The development of a research work of this kind may be a valuable contribution for the current knowledge on the subject, as well as for future research.

The objective of this dissertation is to analyse the actual and future trends of accelerators, considering a worldwide scale, with a particular focus on their business models, acceleration programs, strategies, challenges and priorities for the future. This thesis is based on an in-depth literature review, which includes the most relevant concepts about entrepreneurship and accelerators. Following the literature review, there is an empirical study that is based on an online survey that was carried out amongst accelerators, which benefits from its strong statistical component. Moreover, there are Case Studies based on some organizations' business models, that are relevant for the analysis.

Throughout this research work, we concluded that accelerators are a worldwide phenomenon, due to the impact they have both in the development of the startups, as well as in the economic development of the region they operate in. Moreover, these organizations have different business models and, according to their nature and characteristics, they have distinct ways of facing the challenges and priorities for the future.

Keywords: Accelerators, Entrepreneurship, Entrepreneurial Ecosystems, Startups

Resumo

Numa era em que as economias enfrentam constantes desafios numa escala global, o empreendedorismo surge para muitos como uma opção alternativa e viável. Dado o considerável impacto que este apresenta a nível de desenvolvimento económico de uma região, vários autores dedicaram-se a investigar o tema ao longo dos anos, pelo que a literatura disponível é bastante rica e completa.

Os ecossistemas de empreendedorismo contemplam um vasto leque de entidades que interagem em relações únicas de simbiose, de onde se destacam as *startups*, as universidades, o governo, os investidores e as entidades que prestam apoio às *startups* em fase de desenvolvimento, as quais incluem aceleradoras, incubadoras e espaços de *co-working*. Porém, algumas destas entidades, especialmente as aceleradoras de *startups*, são ainda bastante recentes, visto que a primeira surgiu apenas em 2005. Como tal, ainda não existe um estudo aprofundado sobre o tema nem existem muitas conclusões rigorosas acerca da natureza e impacto destas entidades, que se crê desempenharem um papel preponderante no desenvolvimento de muitas *startups*.

Assim, esta dissertação é motivada por essa lacuna de conhecimento rigoroso no que diz respeito a aceleradoras. O desenvolvimento de um trabalho académico neste âmbito poderá constituir um apoio valioso para o estado do conhecimento atual, bem como para futuras abordagens e estudos.

O objetivo deste trabalho passa por analisar as tendências atuais e num futuro próximo das aceleradoras a nível mundial, com enfoque nos seus modelos de negócio, programas de aceleração, estratégias, desafios e prioridades para o futuro. Este trabalho académico assenta numa abrangente revisão bibliográfica, que contempla os conceitos mais relevantes sobre empreendedorismo e aceleradoras. A este levantamento bibliográfico segue-se o estudo empírico que foi realizado com base num inquérito online a aceleradoras, o qual beneficia de uma forte componente estatística. Existem ainda Casos de Estudo que foram desenvolvidos com base em modelos de negócios de algumas aceleradoras, que se consideraram pertinentes para análise.

Assim, a partir deste estudo concluiu-se que as aceleradoras constituem um fenómeno de escala mundial, pelo impacto que têm no desenvolvimento das *startups* e do próprio desenvolvimento económico do local onde operam. Para mais, estas organizações variam no que respeita aos seus modelos de negócio e, consoante a sua natureza e características, apresentam formas distintas de encarar os desafios e prioridades para o futuro.

Palavras-chave: Aceleradoras, Empreendedorismo, Ecossistemas de Empreendedorismo, *Startups*

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Acronyms

BA	Business Angel
CEO	Chief Executive Officer
EIR	Entrepreneur-in-Residence
IoE	Internet of Everything
IoT	Internet of Things
IT	Information Technology
MIT	Massachusetts Institute of Technology
NPS	Net Promoter Score
NYC	New York City
SaaS	Software as a Service
SME	Small and Medium-sized Enterprises
UK	United Kingdom
USA	United States of America
VC	Venture Capitalist

Chapter 1

Introduction

The purpose of this section is to present the context of this dissertation and to further explain the reasons that led to this research work. It will provide a description regarding the objectives of this dissertation and the methodology that was used throughout its development. Moreover, this section presents the research questions that were chosen to analyze, as well as the organization of the dissertation, in which there is a brief preview of each chapter that is part of this work**.**

1.1 Context

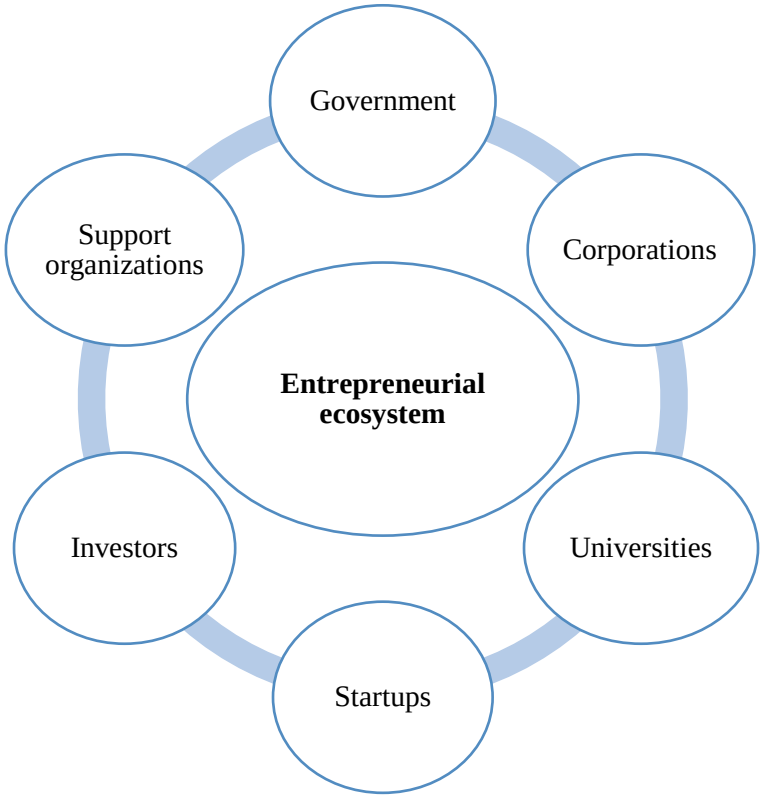
An entrepreneur is a person who organizes and manages a business undertaking, assuming the risk for the sake of profit (Hull & Bosley, 1980). Mescon & Montanari (1981) simply define an entrepreneur as a founder of a new business. According to Bygrave & Hofer (1991), the act of becoming an entrepreneur is related to changing the external environment from one state (the one without the venture) to another (the one with the venture) and it also stands for a basic discontinuity in the competitive structure of the industry involved.

However, it is widely accepted that the field of entrepreneurship does not have a single unified and accepted definition for the term 'entrepreneurship' (Gedeon, 2010). In his research, this author considered two very important dimensions in terms of analyzing and defining entrepreneurship: the Risk Theory of Profit and the Dynamic Theory of Profit.

Isenberg (2011) claims that risk may be perceived as intrinsic to entrepreneurship because the entrepreneur participates in an activity that will only generate value, if at all, later. The reason leading to entrepreneurs making such risky investments is that they actually perceive their risks to be lower than other people's because they understand they have some asset, information, assessment, idea or ability. Entrepreneurs, in the widest economic sense, usually buy inputs low, transform them through risk, and sell them high. Therefore, entrepreneurship is believed to play a very important role in the continued growth and development of national and even international economy (Lashgarara, 2014).

Just as the natural world may be perceived as an ecosystem, entrepreneurial businesses may as well be understood as ecosystems. In this dissertation, the various elements that are part of the entrepreneurial ecosystem are carefully analyzed, in order to understand their importance and contribution to the ecosystem. Figure 1.1 represents the main elements that are part of the entrepreneurial ecosystem.

Figure 1.1 – Main elements of the entrepreneurial ecosystem



Entrepreneurship may exist in a variety of ways: if one decides to launch a restaurant, one may be perceived as an entrepreneur and someone who launches a mobile app may as well be called an entrepreneur. A startup is a temporary organization that looks for a scalable, repeatable and profitable business model. The startup business model is considered to be a canvas covered with ideas and guesses. However, it has no customers and minimal customer knowledge (Blank & Dorf, 2012). Hence, it is a special type of entrepreneurship. In this dissertation, there is a particular focus on digital entrepreneurship and digital startups.

Accelerators are part of the organizations that provide support to startups and this research work is mainly focused on these entities. As an entrepreneur, it is probably a goal to launch a business as profitable as possible, but if one looks forward to developing a startup, some help is required and this is where accelerators can be most helpful. Generally, these organizations look forward to helping the new digital ventures early in their lifecycle (Birdsall et al., 2013), using a lean startup approach.

The accelerator sector is still quite recent and the first accelerator, named Y Combinator, was only founded in 2005 by Paul Graham. Initially, it was founded in Massachusetts, but soon moved to Silicon Valley (Cohen & Hochberg, 2014).

Accelerators represent a new incubation model, which has developed into an umbrella term for any program that offers structured mentoring, networking opportunities and access to funding. During the last decade, the popularity of accelerator programs has increased all over the world, as a way of support for early–stage ventures. Funded by a mix of investors, public bodies or large corporates, these programs usually provide space, money, mentoring and guidance to classes of entrepreneurs to help them rapidly grow and turn their idea into a concrete and real business (Clarysse, Wright, & Hove, 2015).

Initially, many accelerator programs were generalist, accepting entrepreneurs whose businesses were directed at a variety of different industry verticals. As the time passed by, many accelerators have started to focus on a specific industry and those are named vertical accelerators. Some of these are: Surge in Houston, Texas, which focuses on acceleration of energy startups or Kaplan EdTech located in New York, which is mainly focused on education-related startups (Cohen & Hochberg, 2014).

There are other significant differences amongst accelerators besides being horizontally or vertically focused. Accelerators may get funding through a variety of ways: government, sponsorships and events, private funding by corporations, research reports, innovation scouting for larger companies, grants and rentals or Entrepreneur-in-Residence programs. Other differences are related to the accelerators deciding to go international or staying local.

1.2 Research Objectives

The aim of this dissertation is to study and acquire knowledge about the current and future trends of accelerators worldwide, with regards to their business models, acceleration programs, strategies, priorities and challenges for the future. Therefore, it is an objective to provide a study of interest to the community closely related to the acceleration and entrepreneurship sector.

In order to achieve such objective, this dissertation includes a literature review regarding entrepreneurship, entrepreneurial ecosystems and accelerators, so that it is possible to be aware of what other authors and researchers have concluded about the subject so far and also to analyze the relevant concepts that are mentioned in this research work.

The development of the literature review allowed us to have access to important background information that facilitated the process of further research. Moreover, it was possible to identify the research questions that this dissertation should address.

Having defined the research questions, a survey was developed based on the concepts and definitions that had been previously included in the theoretical contextualization. By analyzing the results, it was possible to provide a reliable generalist portrait of accelerators worldwide, with the identification of some interesting conclusions. This was mostly accomplished through the quantitative analysis based on descriptive statistics that was carried out on the data, as well as the statistical inference operated on the data.

Moreover, some Case Studies were structured and developed in order to further analyze relevant aspects about accelerators. The accelerators that were included in the Case Studies' chapter had some distinguishable features with regards to their business models that made them interesting and worth studying.

After the data collection, an analysis of the results was conducted and the research questions were addressed. Finally, some conclusions were reached, the limitations of the study were presented, as well as some recommendations and advice for future research.

1.3 Methodology

In this part of the chapter, the methodology used to conduct this study will be depicted. This section includes an overview of the research design, followed by the data collection methods that were used.

1.3.1 Research Design

The methodology used plays a very important role in the outcome of the study, as it will depict and justify the methods that were selected for the research. Therefore, the various stages that were part of the research process for this dissertation were:

1. Literature review: theoretical contextualization on the subject;

2. Identification of the research questions;

3. Development of the survey: definition of the research design, development of a preliminary version of the survey, feedback from Professor António Grilo, Professor Aneesh Zutshi, Beta-i and NESTA and development of the final version of the survey;

4. Analysis of the results of the survey: descriptive statistics and statistical inference**;**

5. Identification of interesting situations based on the results of the survey;

6. Development of the Case Studies**: s**tructuring of the Case Studies, interview with accelerators via Skype, analysis of the collected data and development of the Case Studies;

7. Addressing the Research Questions.

The purpose of the literature review was to gather information and relevant knowledge on the scope of study and to provide a robust theoretical contextualization that would be most useful for the upcoming stages of the research. The literature review includes theoretical foundation on entrepreneurship, entrepreneurial ecosystems and their actors as well as a more detailed analysis of accelerators and related aspects such as the various programs offered, their business models, the benefits for the stakeholders that are connected to the accelerator or what is expected to happen in the future of acceleration.

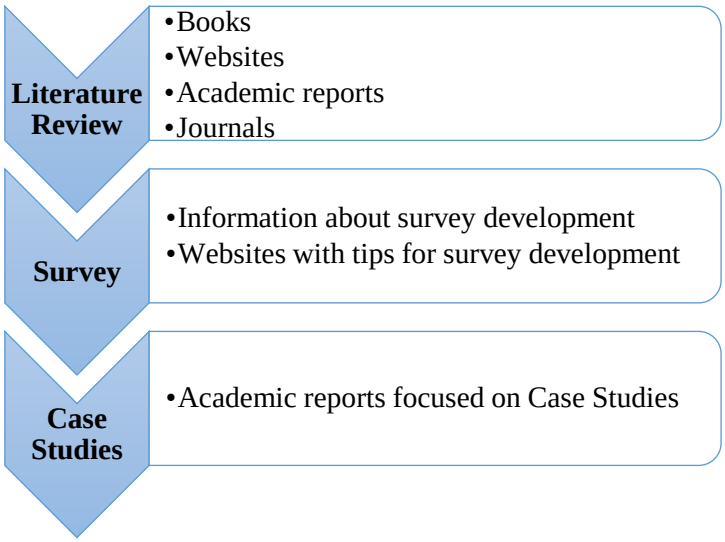
Once the literature review was complete, it was possible to identify the research questions that this dissertation would address. In order to address them, a survey was developed. At first, it was important to define the research design and the preliminary version of the survey, which were later analysed by Professor António Grilo, Professor Aneesh Zutshi, the startup accelerator Beta-i and NESTA. Having taken into consideration the valuable comments that were made, some adjustments were done in order to reach the final version of the survey, which would be sent to numerous accelerators across the world. Once the data was collected, the results were analysed in two different dimensions: firstly, a quantitative analysis was carried out, mostly based on descriptive statistics and secondly, it was considered pertinent to run statistical inference on the data, in order to reach interesting conclusions and correlations.

The analysis of the results of the survey led to the identification of some interesting situations and trends. In order to further analyse those aspects, some Case Studies were developed. Interviews via Skype were conducted with specific accelerators that had distinctive and relevant business models and the information that was collected was then carefully analysed, in order to structure and develop the Case Studies. Finally, having collected and analysed all the information, it was possible to address the research questions.

1.3.2 Data Collection Methods

In order to gather data for the research work, a considerable amount of sources was used. In each stage of the dissertation, different data collection methods were used. Figure 1.2 shows the various methods that were used in order to conduct the research.

Figure 1.2 - Data Collection Methods



In order to properly structure and develop the literature review, several sources were used, such as books, websites, academic reports and journals. The field of entrepreneurship has a considerable amount of information available, so it was necessary to filter and select the reliable and essential information for the purpose of this dissertation. Therefore, there was a great sense of carefulness in the process of data collection and the information that was selected mostly came from well-known authors and institutions whose studies benefit from assured quality. While the field of entrepreneurship had a wide variety of information available, the subject of accelerators was not so well-documented. In that way, some sources were particularly useful such as NESTA's reports or the research work conducted by Yael Hochberg and Susan Cohen.

The literature review led to the identification of the research questions and to the realization that it would be useful to provide a complete study on accelerators and their main defining traits. Therefore, the development of a survey was the most suitable option to gather information on the former topics. In order to properly structure and develop the survey, websites with valuable tips and information on survey development were consulted. The objective of conducting an online survey was to collect quantitative data and this method was chosen because it offered the possibility of evaluating and quantifying the respondents' perspectives on their own accelerators, while facilitating the access to the potential respondents.

The analysis of the results from the survey led to the identification of interesting situations that would benefit from further analysis, through the development of Case Studies. In order to do so, academic reports on this subject were consulted and those were the guidelines to the development of the Case Studies that are part of this research.

1.4 Research Questions

Once the literature review was complete, it was possible to identify the research questions that this dissertation would address. Since accelerators are a relatively new phenomenon, there is not much reliable information available on these entities, so we realized it would be of great value to provide a complete study on the main characteristics and trends of these organizations. Based on the information that was collected, we understood it was important to analyse their main defining features, including the acceleration programs, the strategic reasons that lead them to running a certain type of program, the value that entrepreneurs get out of the various programs offered, relevant aspects of their business models, their strategies, priorities and challenges for the future. Therefore, we defined two research questions that included the former topics:

- How are accelerators evolving around the world?

- What characterizes the dynamics of the acceleration programs?

1.5 Organization of the dissertation

This dissertation is organized into eight chapters. The first chapter contains an introduction to the topic of this research, which includes a theoretical contextualization, the identification of the research objectives, the description of the methodology that was used and the identification of the research questions.

The second and third chapters provide a theoretical review of the existing literature related to the scope of this study.

The second chapter is focused on entrepreneurship and entrepreneurial ecosystems, and this section includes an analysis of the various actors that are part of the ecosystem. In that way, pertinent concepts such as startups, investors (Business Angels and Venture Capitalists), support organizations (incubators, co-working spaces and accelerators) and other entities related to the ecosystem are carefully explained, according to what has been concluded in previous research conducted by academic scholars.

The third chapter is focused on accelerators, which are part of the support organizations. Different aspects are analyzed, such as the definition of accelerators, the rise of accelerators during the last years, the distribution of these organizations across the world, the different types of accelerators and programs that are provided to startups, the funding of accelerators and the metrics that are used to track progress.

In the fourth, fifth and sixth chapters the main results of this research work are presented and analyzed. The fourth chapter is focused on the quantitative analysis based on descriptive statistics, which provides a valuable portrait of accelerators worldwide. The fifth chapter is related to the statistical inference and this is where some correlations and Principal Components Analysis are presented, leading to the identification of interesting conclusions. The sixth chapter includes some Case Studies of accelerators, which further analyze topics studied in the two previous chapters.

The seventh chapter includes an analysis of the results and this is where the research questions are addressed. Finally, the eight chapter is focused on the conclusions of the dissertation, including recommendations and limitations of the research as well. Table 1.1 briefly explains the organization of this dissertation.

Table 1.1 - Organization of the dissertation

Chapter 1 - Introduction	Context Research Objectives Methodology Research Questions Organization of the dissertation
Chapter 2 – Entrepreneurship and Entrepreneurial Ecosystems	Defining Entrepreneurship and Entrepreneur Entrepreneurial Ecosystem and Environment Entrepreneurial Ecosystem Actors
Chapter 3 – Accelerators	Definition Differences between an accelerator and other entities Rise of accelerators during the last years Accelerators in the world Types of accelerators and acceleration programs Benefits of acceleration programs for startups and other stakeholders Funding Equity Internationalization KPIs Future of acceleration
Chapter 4 – Results: Quantitative analysis	Generalist portrait of accelerators worldwide, based on descriptive statistics
Chapter 5 – Results: Statistical Inference	Correlations, principal components analysis and linear regression with regards to accelerators
Chapter 6 – Results: Case Studies	Case Studies about different accelerators
Chapter 7 – Addressing the Research Questions	Summary of the main facts and relevant information, important to address the Research Questions
Chapter 8 – Conclusions, Limitations & Recommendations	Conclusions Limitations Recommendations

Chapter 2

Entrepreneurship and Entrepreneurial Ecosystems

The aim of this chapter is to introduce the literature considered to be relevant to the scope of this research work, in order to provide the reader a proper background in terms of concepts related to entrepreneurship and entrepreneurial ecosystems. Moreover, this section includes an overview of the various elements that are part of the entrepreneurial ecosystem, such as startups, investors, support organizations, universities and government.

2.1 Defining Entrepreneurship and Entrepreneur

Different researchers have concluded that the field of entrepreneurship does not have a well-accepted, unified and consistent definition. Even in the academic literature, there are some inconsistencies regarding the definitions of "entrepreneurship" and "entrepreneur", which reveals some barriers in understanding this phenomenon and the related actors (Anamaria Berea, 2013). Bygrave & Hofer, (1991) suggested that in the absence of a widely accepted definition of an entrepreneur, it is the responsibility of each researcher to state clearly what the term refers to in a certain situation. These authors suggested to shift the focus from 'the characteristics and functions of the entrepreneur' to focus, instead, on the nature and 'characteristics of the entrepreneurial process'. Furthermore, they have argued that an Entrepreneurial Event involves the creation of a new organization to pursue an opportunity (Bygrave, 1989) and that the Entrepreneurial Process involves all the functions, activities and actions related to the perceiving of opportunities and the idealization of organizations to pursue them. Based on these two last definitions, the former authors have defined an entrepreneur as someone who perceives an opportunity and creates an organization to pursue it.

In order to avoid problems regarding definitions, scholars have applied different adjectives to the word 'entrepreneurship' so that sub-domain terms are created, such as 'corporate entrepreneurship', 'social entrepreneurship', 'opportunity entrepreneurship' and others (Gedeon, 2010). According to this author, there is now a great variety of sub-domain entrepreneurship terms in the literature, which come from different theories and apply to different aspects of entrepreneurship.

Motoyama & Watkins (2014) brought back a study conducted by Van de Ven in 1993, in which it was stated that the lack of research on the subject was due to past academic studies only focusing on individual characteristics and behaviors of individual entrepreneurs. Those past studies tried to analyze who the entrepreneurs were and what type of individual traits led them to success. Spilling (1996) also stated that literature regarding entrepreneurship had a bias towards focusing upon individual actors developing new ventures. This may be suitable when one is focused on the development of individual ventures or on behavior and traits of entrepreneurs. However, in order to analyze the economic development at the community level, this approach is not sufficient. Shane & Venkataraman (2000) agreed that entrepreneurship literature was focused on the relative performance of individuals or firms in the context of a small or new businesses. Gartner (1988) commented on the problems related to defining the field in terms of the individual alone, concluding that entrepreneurship researchers have generated incomplete definitions that do not withstand the scrutiny of other scholars.

Neck et all (2004) stated that regions of high entrepreneurial activity are important for research, but the various forces and actors that are part of this activity cannot be studied independently. According to Malecki (1997), "entrepreneurship is a process as well as a phenomenon". In that way, it is reasonable to view a region of high entrepreneurial activity as a system in addition to the previous research that analyzed the actions of individual actors, events and organizations independently.

Shane & Venkataraman (2000) argued that although the phenomenon of entrepreneurship provides research questions for many different scholarly fields, scholars are fundamentally concerned with three sets of research questions regarding entrepreneurship:

- why, when, and how opportunities for the creation of goods and services start to exist;
- why, when, and how some people and not others discover and exploit these opportunities;
- why, when, and how different modes of action are used to exploit entrepreneurial opportunities.

Gedeon (2010) based his research on some past important attempts to define entrepreneurship. This author mentioned two very important dimensions that should be taken into consideration when defining entrepreneurship: the Risk Theory of Profit and the Dynamic Theory of Profit.

- **The Risk Theory of Profit**

There are some authors such as Cantillon (1755), that defined an entrepreneur as the farmer or merchant who bore the risks associated with purchasing inputs at given price to produce and sell later at an uncertain price. Later, Hawley (1907) reinforced this idea by stating that the assumption of risk is the most essential function of the entrepreneur and that the rewards of enterprise primarily come to the owner due to the assumption of responsibility and risk. Gedeon (2010) also brought back other risk-related definitions:

- Palmer (1971), who suggested that the entrepreneurial function involves primarily risk measurement and risk taking within a business organization;

- Hull & Bosley (1980), who defined an entrepreneur as someone who organizes and manages a business undertaking, assuming the risk for the sake of profit.

- **Dynamic Theory of Profit**

The Dynamic Theory of Profit starts with neoclassical economic theory which proposes that profits arise as a result of dynamic change from the static equilibrium state of perfect competition (Hayek, 1937).

Gedeon (2010) brought back some definitions which are related to the Dynamic Theory of Profit:

- Schumpeter (1934) who argued that 'the carrying out of new combinations we call 'enterprise'; the individuals whose function is to carry them out we call 'entrepreneurs';

- Ely & Hess (1937) who argued that an entrepreneur is 'the person or group of persons who assume the task and responsibility of combining the factors of production into a business organization and keeping this organization in operation'.

On the other hand, Anamaria Berea (2013) defined entrepreneurship as a highly interdisciplinary area of research in social science, that studies the formation of these private business organizations from individual entrepreneurial actions. According to Ahmad & Seymour (2006), entrepreneurs are those who look forward to generating value, through the creation or expansion of economic activity, by identifying and exploiting new products, processes or markets.

The act of becoming an entrepreneur includes changing the external environment from one state (the one without the venture) to another (the one with the venture). It also stands for a basic discontinuity in the competitive structure of the related industry. Sometimes it even contemplates the creation of the industry itself (Bygrave & Hofer, 1991). There is also the belief that entrepreneurship does not require,

but may include, the creation of new organizations. Different authors, such as Amit, Glosten & Mueller (1993) argue that entrepreneurship can also occur within an existing organization.

2.2 Entrepreneurial Ecosystem and Environment

Ecosystems exist in the natural world in a variety of ways. The word 'ecosystem' was first introduced around 1930 by English botanist Arthur Tansley, who is known for being the pioneer of ecology. Sir Arthur Tansley referred to a localized community of living organisms interacting with each other and their particular environment of air, water, mineral soil and other different elements. These organisms interact with each other in a variety of ways: they influence each other and their terrain, they compete and collaborate, share and create resources and coevolve. Furthermore, they are susceptible to external disruptions, to which they adapt together (Deloitte, 2015). Just as the natural world may be perceived as an ecosystem, entrepreneurial businesses may as well be understood as ecosystems.

Ecosystems are dynamic and co-evolving communities of various actors who create new value through more and more productive and sophisticated models that include both collaboration and competition (Deloitte, 2015). Mason & Brown (2014) defined an entrepreneurship ecosystem as 'a set of interconnected entrepreneurial actors, entrepreneurial organizations, institutions and entrepreneurial processes which formally and informally coalesce to connect, mediate and govern the performance within the local entrepreneurial environment'. A robust interconnection of entrepreneurial activities and resources might make a valuable contribution to a healthy entrepreneurial dynamic that works as an encouragement for business development and innovation (Papacosta et al., 2015).

Ecosystems may have different shapes, sizes and varieties and they allow and encourage the participation of different sized organizations, and often individuals. Together, they manage to create, scale, and serve markets, going beyond the capabilities of any single organization. This enables the existence of a healthy and balanced ecosystem (Deloitte, 2015). Previous research that has been conducted has shown the importance of different, single elements of an entrepreneurial system with regards to the overall macroeconomic development of a region (Neck et al., 2004).

Those who are part of the ecosystem are connected in a sense that they share interests, purpose and values, which leads them to collectively foster, sustain and protect the ecosystem. If everyone contributes to the well-being of the ecosystem, then everyone will most likely benefit from it, which increases the longevity and durability of ecosystems. The diversity of participants and players, and their aptitude to learn, familiarize and participate in innovation together are significant elements of their longer-term success (Deloitte, 2015).

Entrepreneurial ecosystems are very much a dynamic rather than a static phenomenon (Mayer, 2013) and they provide businesses access to sharp minds and smart resources, which may be located with suppliers, customers, research organizations or independently. Moreover, ecosystems thinking provides a new mindset that is able to capture a significant shift in the economy and the business landscape. Relationships, partnerships, networks, alliances, and collaborations have undeniable importance that keeps growing as the time passes by. It is becoming increasingly possible for firms to activate assets they do not own or control, to engage and mobilize more and more participants and to facilitate much more complex coordination of their expertise and activities (Deloitte, 2015).

It is also important to mention that entrepreneurial ecosystems can be industry specific. There is, for instance, the pharmaceuticals cluster in Copenhagen or the mobile cluster in North Jutland, Denmark. They may have evolved from a single industry to include several industries. In addition, they are geographically bounded but not confined to a specific geographical scale (campus, city or region, for instance). They are also not related to particular sizes of city: there are some small cities such as Austin, Texas or Cambridge that benefit from having thriving entrepreneurial ecosystems. Entrepreneurial ecosystems tend to emerge in locations that have place-specific resources. Such ecosystems tend to be located in places in which people wish to live, because of their cultural attractions or their physical features which may provide opportunities for outdoor activities (Mason & Brown, 2014).

An important feature of entrepreneurial ecosystems is that their growth is driven by a process of 'entrepreneurial recycling' (Mason & Harrison, 2006). Entrepreneurs who have managed to launch successful companies which they have gone on to sell, usually leave the company shortly after it is sold. However, they keep involved in the cluster, reinvesting their fortune and experience to create more entrepreneurial action. Some of them will likely become serial entrepreneurs, starting new businesses; some will become business angels, providing startup funding for new businesses and offering others the opportunity to learn from their experience, while others may even set up a venture capital fund. Others become advisers and mentors, board members and get involved in teaching entrepreneurship. The entrepreneurial recycling process is mostly driven by exits. Preferably, entrepreneurs and other management shareholders should become wealthy to a point in which they do not need to work again, so that they can entirely focus on creating and supporting more entrepreneurial activity (Mason & Brown, 2014).

Silicon Valley is arguably the most famous and successful entrepreneurial ecosystem. Therefore, it has been the envy of regional economic developers and the living laboratory for many academic researchers who try to understand how those communities have come to exist and to thrive. These Silicon Valley observers have been focused not only on description but replication as well. The wealth and job creation happening in places such as Silicon Valley, Boston's Route 128 and North Carolina's Research Triangle can be a region's answer to floundering local economies (Neck et al., 2004).

Gnyawali & Fogel (1994) refer to an 'entrepreneurial environment' as a combination of factors that are important regarding the development of entrepreneurship. There are two different perspectives on this subject: firstly, it refers to the economic, sociocultural, and political factors that have influence on people's disposition and capacity to engage in entrepreneurial activities; secondly, it refers to the availability of assistance and support services that may facilitate the startup process. These authors have grouped the environmental conditions into five dimensions: government policies and procedures, socioeconomic conditions, entrepreneurial and business skills, financial support to businesses and non-financial support to businesses. Table 2.1 includes the various elements that are part of each of these dimensions.

Table 2.1 - A Framework for Entrepreneurial Environments

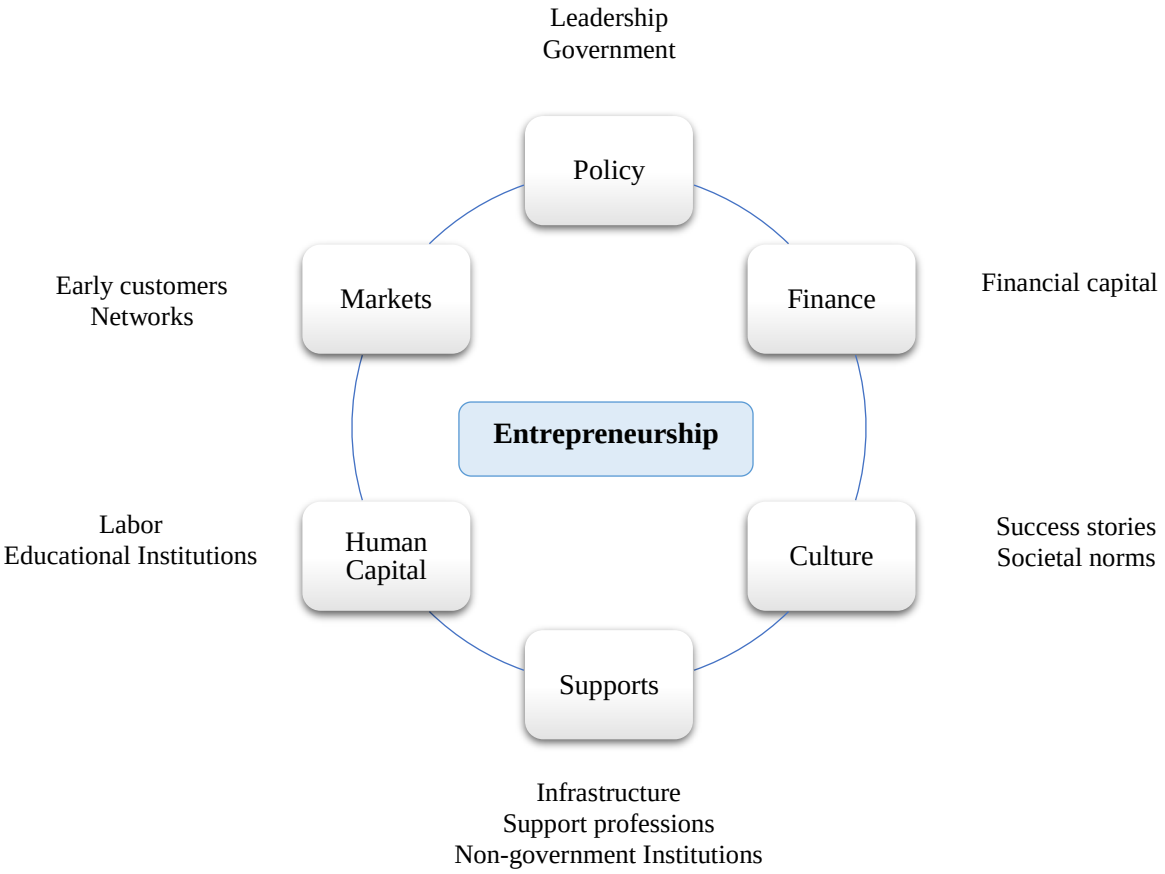
Government Policies and Procedures	• Restrictions on imports and exports • Provision of bankruptcy laws • Entry barriers • Procedural requirements for registration and licensing • Number of organizations for entrepreneurs to report to • Rules and regulations governing entrepreneurial activities • Laws to protect proprietary rights
Socioeconomic conditions	• Public attitude towards entrepreneurship • Presence of experienced entrepreneurs • Successful role models • Existence of people with entrepreneurial traits • Recognition of exemplary entrepreneurial performance • Proportion of small firms in the population of firms • Diversity of economic activities • Extent of economic growth
Entrepreneurial and Business Skills	• Technical and vocational education • Business education • Entrepreneurial training programs • Technical and vocational training programs • Availability of information
Financial Assistance	• Venture capital • Alternative sources of financing • Low-cost loans • Willingness of financial institutions to finance small entrepreneurs • Credit guarantee program for startup enterprises • Competition amongst financial institutions
Non-financial Assistance	• Counselling and support services • Entrepreneurial networks • Incubator facilities • Government procurement programs for small businesses • Government support for research and development • Tax incentives and exemptions • Local and international information networks

(Source: adapted from Gnyawali & Fogel, 1994)

Nowadays, there is a considerable amount of models of entrepreneurial ecosystems. In 2011, Isenberg developed an influential and useful approach, in which he articulated what he named an 'entrepreneurship ecosystem strategy for economic development'. Such approach is a novel and cost-effective strategy for stimulating economic accomplishment. The author claims that this approach has the potential to 'replace' or to become a 'pre-condition' to, cluster strategies, innovation systems, knowledge economy or national competitiveness policies. Isenberg (2011) argued that the need for an ecosystem strategy comes from the observation that when we look at societies where entrepreneurship occurs with any regularity or is self-sustaining, we realize that a unique, complex environment or ecosystem has evolved.

In his research, Isenberg (2011) has identified six domains within the entrepreneurial ecosystem: a favorable culture, conducive policies, availability of finance, human capital, markets for products and a wide variety of institutional supports, as represented in Figure 2.1.

Figure 2.1 - Domains of the Entrepreneurship Ecosystem



(Source: adapted from Isenberg, 2011)

Figure 2.1 shows a diagram containing the various domains that have an influence on the entrepreneur's choices and achievement. However, it is important to mention that these generic domains contain countless elements that interact in very complex ways. Consequently, the process of pinpointing

common causal paths is of restricted value. This leads to the author emphasizing the importance of the framework, since each ecosystem emerges under a distinctive set of surroundings and circumstances, because no one can replicate someone else's ecosystem (Isenberg, 2011). Chapman (2011) has also identified the five basic elements of the ecosystem: human capital, financial capital, deal flow and other metrics, mentors and models (knowledgeable community) and infrastructure.

Fang et al. (2015) have conducted a research regarding the entrepreneurial ecosystem too, claiming that there are five entities in every ecosystem that are very important regarding the creation and sustaining of the startup ecosystem: startups, corporations, educational institutions, governments and investors. There are also three essential roles within the ecosystem: the ignitor to promote ecosystem creation, the connector to maximize the connections between the five entities and the lever to differentiate it from other ecosystems. The authors have named this model 'The Power of 5'. Fang et al. (2015) concluded that each entity has a specific function within the ecosystem and provides an exclusive benefit:

1. Startups: spur job creation in the community as startup founders transform ideas into concrete businesses;

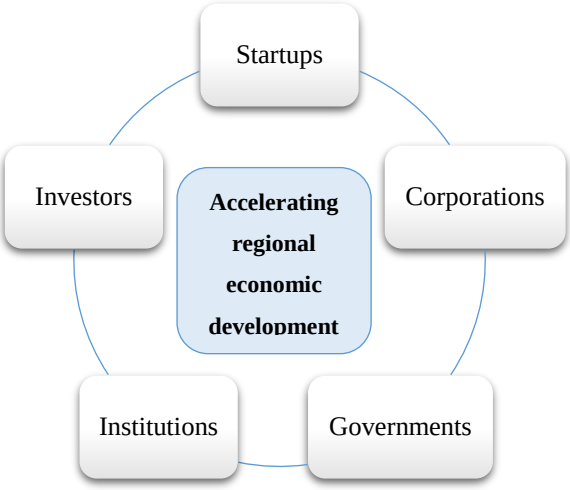
2. Corporations: provide entrepreneurs an outlet to solve industry and specific company problems, as well as connections to new talent;

3. Governments: implement policies to attract startups through taxes, incentives, grants and funding;

4. Educational institutions: infuse young talent with significant skill sets and provide educational mentorship;

5. Investors: fund early-stage startups and connect portfolio companies to potential customers and mentors in their network.

Figure 2.2 - Innovation ecosystem



(Source: adapted from Fang et al., 2015)

Figure 2.2 represents the various elements that are part of the innovation ecosystem, according to Fang et all (2015).

The needs of these entities vary, but each of them requires access to the other. Because of that, ecosystem stakeholders are more and more interdependent. For instance, customers for startups may be corporations, educational institutions or governments. Corporations may have access to breakthrough innovation by directly interacting with startups, or through introductions via other corporations, investors, educational institutions and the government. These intricate relationships require each of the five to think and act as a maximalist, contributing while joining forces, so that when success is achieved, each of the ecosystem's partners benefits from that. In order to build startup ecosystems, certain economic actors are required and it is expected that they will equally and reciprocally support each other. Healthy and strong ecosystems require that each of these five entities works together because their needs are interdependent and success is co-created. Maximizing the role these actors play is vital to create and preserve a vivacious startup ecosystem (Fang et al., 2015).

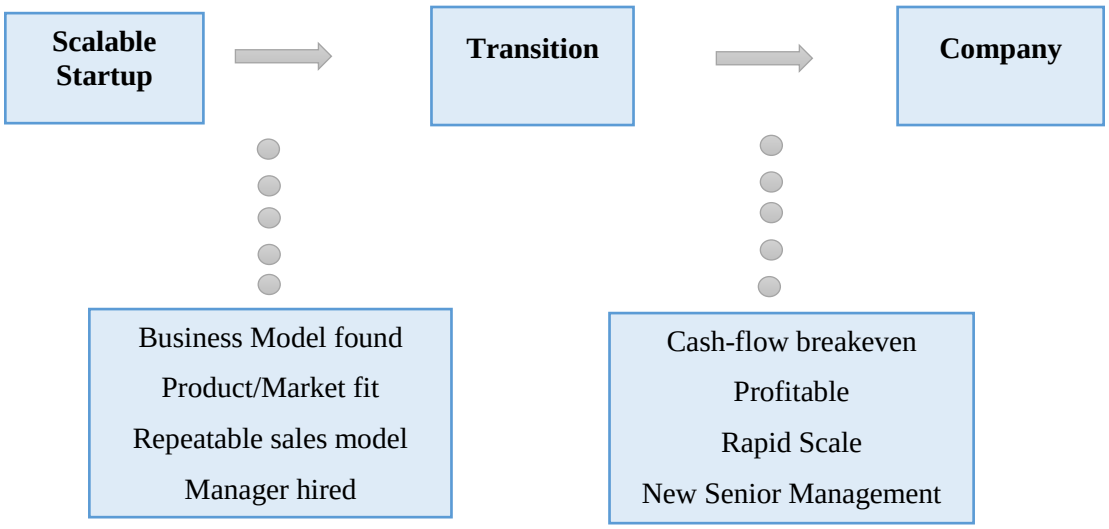
2.3 Entrepreneurial Ecosystem Actors

2.3.1 Startups

A startup is not a smaller version of a large company. In that way, a startup is a temporary organization that looks for a scalable, repeatable and profitable business model. Basically, the startup business model is a canvas covered with ideas and guesses, but it has no customers and minimal customer knowledge (Blank & Dorf, 2012).

According to the former authors, scalable startups are the work of traditional technology entrepreneurs. These entrepreneurs start a company with the belief that their vision will change the world and result in a company with millions of dollars in sales. At the beginning, a scalable startup tries to find a repeatable and scalable business model. To make this scale happen, it is necessary to have external venture-capital investment to fuel rapid expansion. These scalable startups tend to cluster in technology hotspots such as Silicon Valley, Israel or New York and make up a small percentage of entrepreneurs, but their outsize return potential attracts almost all the risk capital. Figure 2.3 represents the evolution from a scalable startup into a company.

Figure 2.3 - Scalable startup



(Source: adapted from Blank & Dorf, 2012)

Startup Lifecycle

It is also important to be aware of the startup lifecycle. According to Marmer & Bjoern (2011), if one understands at which stage the startup is in its lifecycle, it is easier to assess the progress. These authors have stated that the startup lifecycle is made of six stages and each stage has different levels of substages. This tree structure allows a more detailed assessment by being able to pinpoint the main drivers of progress at each stage. The first four top-level stages are based on Steve Blank's 4 Steps to the Epiphany, but one key difference is that the ones that are presented (Marmer Stages) are product centric instead of company centric. Therefore, the six stages are:

1) Discovery;

2) Validation;

3) Efficiency;

4) Scale;

5) Profit Maximization;

6) Renewal.

1) Discovery

In the Discovery stage, the startups look forward to validating whether they are solving a meaningful problem and whether anyone would be interested in such solution that they are presenting. During this stage, there are different events happening, such as the formation of the founding team, different customer interviews being conducted, the definition of the value proposition and the creation of minimally viable products. Moreover, the team usually joins an accelerator or incubator, friends and family become responsible for the financing round and the first mentors and advisors take part in the journey. The Discovery stage usually lasts for 5 to 7 months (Marmer & Bjoern, 2011).

2) Validation

In the Validation stage, the startups are looking forward to getting early validation that people take interest in their product through the exchange of money or attention. During this stage, there are other events happening such as the refinement of core features, the registration of the initial user growth, implementation of metrics and analytics, the achievement of seed funding, hiring of the first important customers, pivot of their business model if it is necessary, getting the first paying customers and working on product market fit. This stage lasts for around 3 to 5 months (Marmer & Bjoern, 2011).

3) Efficiency

In the Efficiency stage, startups improve their business model, as well as the efficiency of their customer acquisition process. At this stage, startups should be able to efficiently get customers, so that they can avoid scaling with a leaky bucket. In this stage, there are other events happening, such as the improvement of value proposition, the examination of user experience and the improvement of the conversion funnel. During this stage, there is the accomplishment of viral growth as well as the discovery of repeatable sales process and/or scalable customer acquisition channels. No funding round takes place during this stage, as it is recommended to wait until the next stage before raising more funds. The Efficiency stage has an average duration of 5 to 6 months (Marmer & Bjoern, 2011).

4) Scale

During this stage, the goal is to drive growth and further development of the venture aggressively. This stage lasts for around 7 to 9 months. During this stage, the main events are related to massive customer acquisition, back-end scalability improvements, first executive hires, process implementation and establishment of departments (Marmer & Bjoern, 2011).

5) Profit Maximization

Generally, profit optimization deals with maximizing the profits of a business without impeding customer happiness. The procedure of profit optimization begins with diagnosing the business for

operational insufficiencies, internally as well as externally, and providing efficient and effective solutions to improve profitability through operational optimization (removal of redundant costs, optimum utilization of resources and improving the gross profit margin) (Compendium Nancial, 2012). During this process, the customer acquisition process keeps happening and there are substantial funding rounds. The main goal is to expand reach and operation to grow profits.

6) Renewal

This stage includes the identification of new markets and products for the business. The goal is to reinvent parts of the business through new solutions. In case there is no renewal, the interest will diminish.

Elements related to new venture creation

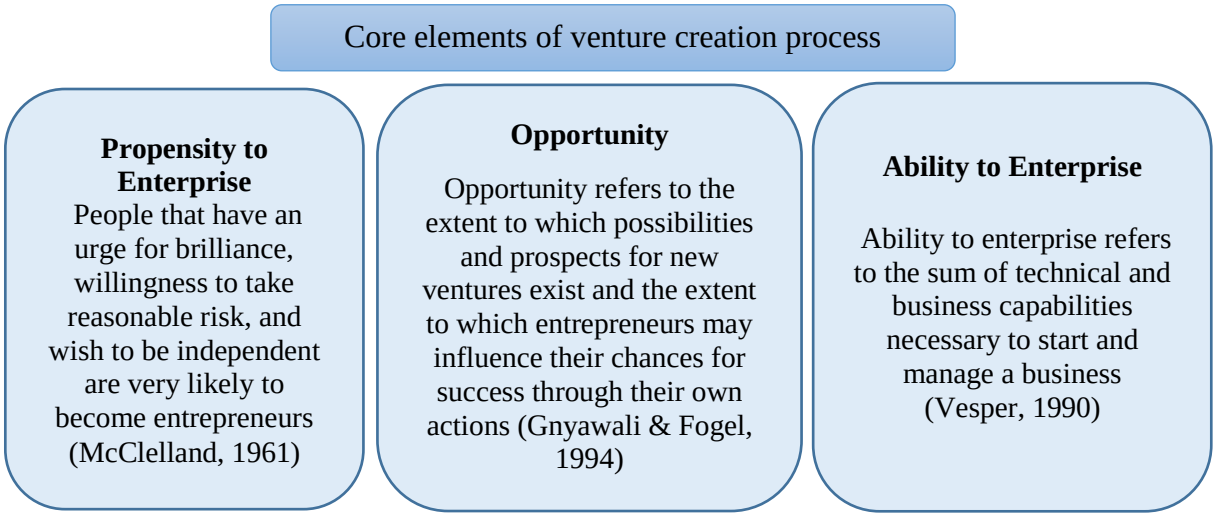
Different scholars agree that the more conducive the business environment, the more likely that new businesses will emerge and grow. It is likely that people will be encouraged and feel ready to start a new business when the surrounding social environment values entrepreneurship, when a wide variety of opportunities are available for entrepreneurs, and when they have enough knowledge and skills that are necessary to start and manage a business.

If potential entrepreneurs do not face difficulties or barriers during the startup process and if they are self-assured that outside expertise could be obtained easily whenever it is necessary, the willingness and capability to start a business may be further enhanced (Gnyawali & Fogel, 1994). There are some key factors that may influence a person's desire and decision to start a business, and potentially increase it. Such factors are, for instance, one's perception of desirability and viability of starting a business (Shapero & Sokol, 1982) or one's propensity and goal to start a business and his or her understanding of the environmental forces (Learned, 1992).

Vesper (1990) identified four important elements related to venture creation: a profitable business opportunity, technical know-how of the entrepreneur, business know-how of the entrepreneur and entrepreneurial initiative.

Based on this past research, Gnyawali & Fogel (1994), identified the three key elements of a venture creation process as opportunity, propensity to enterprise and ability to enterprise, as illustrated in figure 2.4.

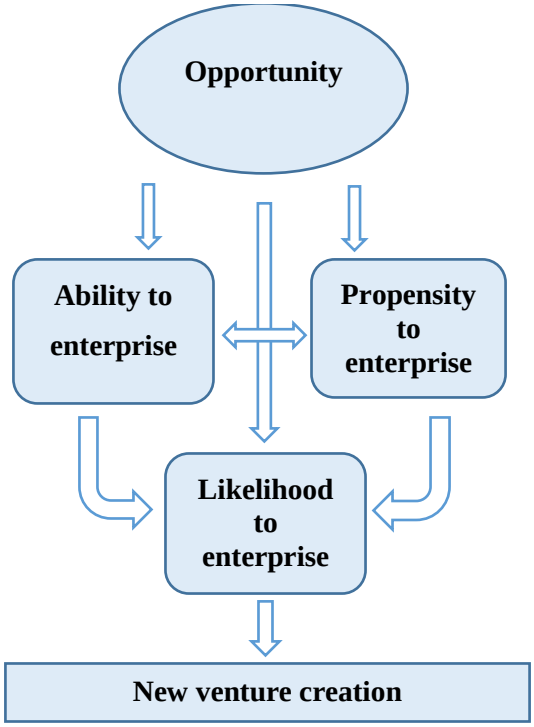
Figure 2.4 - Core elements of venture creation process



(Source: adapted from Gnyawali & Fogel, 1994)

Therefore, a high level of opportunity, propensity to enterprise, and ability to enterprise will positively correlate with one's likelihood to enterprise.

Figure 2.5 - Model showing the relationship between opportunity, propensity to enterprise, and ability to enterprise



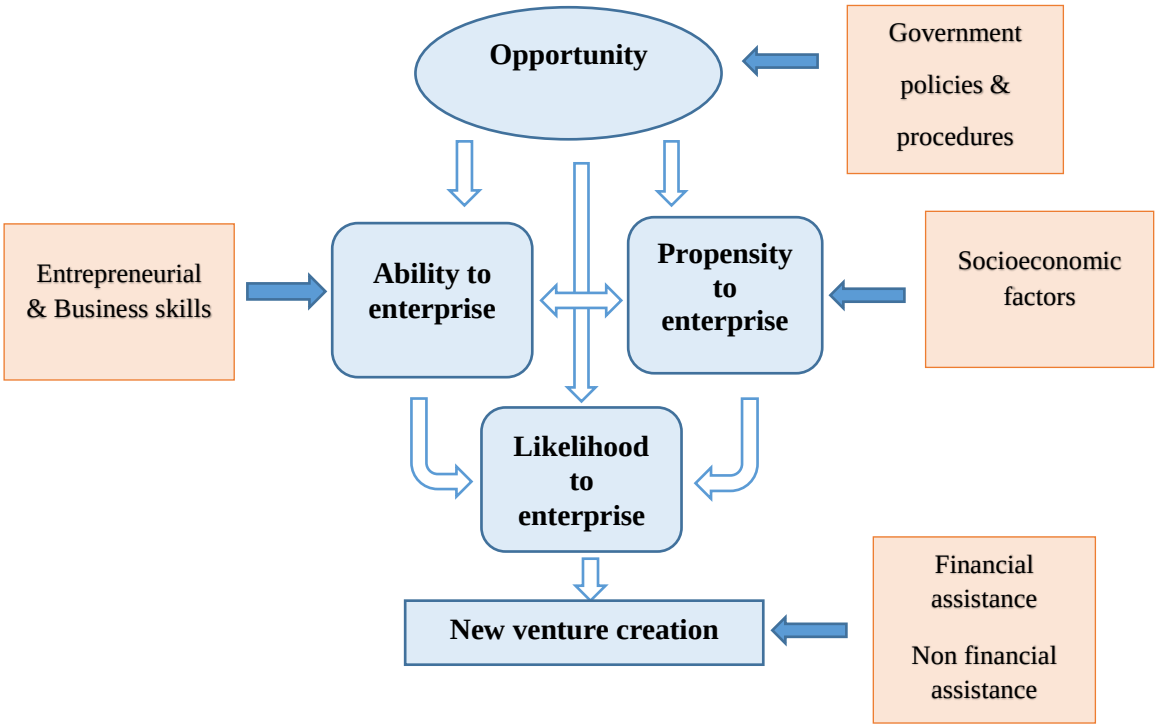
(Source: adapted from Gnyawali & Fogel, 1994)

Figure 2.5 represents a model of the relationship between opportunity, propensity to enterprise and ability to enterprise. The model shows that the process of developing capable entrepreneurs and increasing their probability of enterprising consists of developing varied business opportunities in the

environment, improving people's propensity to enterprise, and developing their capability to enterprise. An important role of the entrepreneurial environment is to help entrepreneurs develop their propensity to enterprise, as well as their ability to enterprise. The importance of each dimension of the environmental factors is variable, according to the availability of opportunities for business startup and the general level of propensity and ability of people to start an enterprise (Gnyawali & Fogel, 1994).

Therefore, the former authors have decided to relate the environmental conditions and the core elements of new venture creation. Usually, the availability of opportunities is a crucial factor for improving the propensity and ability to enterprise and therefore the likelihood to enterprise. The dimension of the environment that is directly related to the opportunity is related to government policies and procedures. The likelihood of business startup increases if there is a suitable legal and institutional framework for efficient functioning of the markets. On the other hand, the dimension of the environment that is related to the propensity to enterprise is socioeconomic factors: the bigger the importance that entrepreneurial values and behaviors have for society, the larger the proportion of skilled entrepreneurs and role models. The dimension of the environment related to the ability to enterprise is the level of entrepreneurial and business skills: the greater the availability of technical and training related to business, the greater the ability of the prospective entrepreneurs to start and undertake a business (Gnyawali & Fogel, 1994).

Figure 2.6 - Correlation between the environmental conditions and the core elements of new venture creation



(Source: adapted from Gnyawali & Fogel, 1994)

Figure 2.6 represents the interconnectivity between the opportunity, ability to enterprise, propensity to enterprise, and likelihood to enterprise and the various dimensions that are connected to these.

2.3.2 Government

The role that the government plays in the development of an entrepreneurial ecosystem is an area of study of great importance (Neck et al., 2004). Governments may have a contribution to entrepreneurship by adopting policies and procedures that will provide a wider range of opportunities for entrepreneurs.

Such interventions may be related to the provision of laws and regulation to protect entrepreneurial innovation such as patents and copyrights, liberal economic policy to allow the community to freely exercise their entrepreneurial talents and minimum rules and regulations for entrepreneurs to follow so that the costs of doing business can be minimized (Gnyawali & Fogel, 1994). In that way, the government plays an important and helpful role because it has the possibility of fostering or impeding entrepreneurship in their regions through tax rates and incentives. Moreover, it may provide a wide variety of forms of financial support or even eliminate the excessive regulation or rigid conformity to formal rules often associated with applying for permits and licenses (Neck et al., 2004).

Usually, the main goal of the government and other agencies is to increase opportunities, to develop the motivation of potential entrepreneurs to get involved in the business and to improve potential entrepreneurs' ability to start a business. The government policies and procedures have an effect on the business opportunity and it is the set of policies, actions and the set of programs of the business development organizations that have an influence on the opportunity, propensity to enterprise and ability to enterprise (Gnyawali & Fogel, 1994).

In Sweden, the government took special measures to encourage small firms to establish, through the creation of tax incentives (Jonsson, 2008). According to Dana (1987), government policy plays a strategic role in directing the economic development of a country. Moreover, this author has also concluded that countries that keep rules and regulations at a minimum, offer tax and other types of encouragements and provide training and counselling services to entrepreneurs increase the probability of new venture creation.

2.3.3 Corporations

Large firms play relevant roles in the evolution of an entrepreneurial ecosystem and they have various advantages for startups, such as market knowledge and experience, economies of scale, established

networks and brand power, as well as other considerable resources. Working with big businesses may be an important route for startups to verify if their products fit the market. Moreover, sharing resources with startups can be a comparatively cheap way for corporates to build a more innovative brand (Mocker, Bielli, & Haley, 2015). Corporations usually support the talent pool and they often look for talented people who feel stifled by the bureaucracy and eventually spin off a new venture with concrete technology. Large corporations may provide the foundation for a technology base in an area as well (Neck et al., 2004).

Corporations are able to attract talent, recruiting many skilled workers, from outside the area (Feldman et al, 2005). They offer employees business training and enable them to progress up the corporate hierarchy. This process allows those in the staff who were initially recruited because of their technological know-how to develop their management skills and become technology managers, which is a valuable resource for small firms. Moreover, they are a source of new businesses as some staff will leave in order to launch their own companies (Mason & Brown, 2014). Large companies can also contribute by providing space and resources for local startups, creating programs to motivate startups and developing companies that boost their own ecosystems. They also put the ecosystem 'on the map'. As Isenberg (2013) claimed, it is not possible to have a flourishing entrepreneurship ecosystem without large companies to cultivate it, purposely or otherwise. However, to make it possible, the businesses should always be open and collaborative (Mason & Brown, 2014).

It is also important to explain entrepreneurship among large companies. According to Blank & Dorf (2012), many of them manage to grow by offering new products that are variants of their core products (this approach is known as sustaining innovation). There is also the possibility for them to invest in disruptive innovation, attempting to introduce new products into new markets with new customers. However, due to these large companies' size and culture, disruptive innovation is quite difficult to execute.

Corporate entrepreneurship, which is sometimes named intrapreneurship, has been used in many firms as an important strategy for organizational renewal and improved performance. As Stevenson & Jarillo (1990) have defined, corporate entrepreneurship is a process by which people inside corporations pursue opportunities without regard to assets they presently control. When effectively implemented, corporate entrepreneurship nurtures innovation and helps employees who have good ideas to better channel the assets of a firm to produce more popular and successful products (Mokaya, 2012). Due to corporate entrepreneurship, it is possible to improve competitive advantage of an existing enterprise. Such competitive advantage may be related to differentiation or cost leadership in the market, fast response to any variations, new strategic direction or new ways of working or learning within the organization (Covin & Myles, 1999).

2.3.4 University

Universities gather students who are interested in a certain field and may want to make a difference in the world they live in. Therefore, the university creates the proper environment for great ideas to emerge. Students are continuously stimulated and often feel motivated to be the best that they can be in order to contribute to their field of study. The university may support the ecosystem in different ways, such as contributing to the development of capable graduates, creating leading-edge technology, and providing faculty as consultants. According to Neck et all (2004), the university is amongst the most commonly mentioned reasons for the development of the entrepreneurial ecosystem. According to Pennings (1982), factors such as availability of financial resources, large size urban areas, and presence of universities for training and research are considered to be essential to increase the rate of new venture creation.

However, universities (especially those outside the US) did not adapt fast to the 'startup revolution'. A considerable amount of research and early-stage technological innovation is due to universities and their students, but a lot of schools took a long time trying to adapt their curriculums or support students who looked forward to dedicating themselves to entrepreneurship. This has changed significantly in recent years. Nowadays, numerous universities have courses about entrepreneurship and innovation available for their students. In addition, a substantial amount of universities has launched their own incubators and more recently accelerators. Nowadays, there are Stanford's StartX, University of Cambridge's Accelerate Cambridge, University of Waterloo's Accelerate Centre and more university-led incubators and accelerators are likely to be launched.

From the perspective of more 'traditional' and corporate accelerators, university-led accelerators and incubators could be perceived as competitors. Nonetheless, 'traditional' and corporate accelerators are starting to view them as important partners, especially because universities have the unique advantage of having first access to the brightest and young tech talent. There are various accelerators that already view universities as important 'feeder schools' for their programs, a trend that is believed to grow in the years to come (NUMA, 2014).

2.3.5 Support organizations

Support organizations are the entities that provide support to the startups during their development and those mostly include incubators, accelerators and co-working spaces.

Incubator

Business incubation is a rather new phenomenon. The industry started at the end of the 1950s, had some early-stage development in the 1980s and grew gradually until nowadays. Academic research related to this topic has also evolved as the industry has grown (Harper-Anderson, Lewis, & Molnar, 2011).

Business incubation programs are meant to accelerate the successful development of entrepreneurial firms through different business support assets and services, developed or orchestrated by incubator program manager and offered in the incubator as well as through its network of contacts. This program's main objective is to produce successful ventures that will leave the program financially sustainable and freestanding. Usually, management guidance, technical assistance and consulting directed to early-stage companies are provided (Harper-Anderson et al., 2011).

Business incubators support entrepreneurs to leverage their business opportunities (Ratinho, 2011) and have become a worldwide phenomenon. According to Smilor (1987), incubators are known for providing benefits for their tenants in four broad dimensions: credibility development, shortening of the entrepreneurial learning curve, faster solution of problems and access to a valuable network of entrepreneurs.

'Business incubation' is a term that describes a business development procedure which is used to develop successful firms and to create viable entrepreneurial ventures that will make a contribution to economics developments of a healthy economy. In order for the incubation process to be successful, there is the need to have a supportive environment where startups have the chance to grow and fulfil their potential growths, as well as providing them a broad variety of business development assets. Therefore, business incubators play important roles regarding the seeding and growth process of new ventures, as well as technology transfer with potential growth in the majority of sectors of the economy (Almubartaki, Al-karaghouli, & Busler, 2010).

Therefore, incubators are valuable for entrepreneurs because they provide assistance in brainstorming a concept or application for a new technology, they provide extra validation, they assist during the process of creating the business plan and model, they facilitate seed funding, they provide a valuable option for those startups that are too early-stage or were missed by venture capitalists and they provide access to a broad variety of experts and advisors. An incubator supports a venture by invigorating every aspect of such venture and its business plan, in order to have a stronger strategy, getting customers and revenue recognition quicker, contributing with a broader vision and they guide startups so that they may avoid typical mistakes during the development process (Chinsonboon, 2000).

Co-working spaces

In the past, it was common for independent workers and small businesses and organizations that were identifying places to work to choose between several scenarios, all with their pros and cons: working from home, working from public venues or leasing an executive suite or other commercial space. Nowadays, there are physical co-working spaces where startups can use for free, or sometimes rent, desks, meeting spaces, internet and other valuable resources. It is considered to be a flexible office environment with leasing terms that are created for dynamic startups (Mocker et al., 2015.).

According to DeGuzman & Tang (2011), co-working appears to be the perfect set-up for startups and freelancers, small organizations and the remote worker, because one has the opportunity to join a collaborative or shared workspace to save money, avoid isolation and collaborate with a broad range of organizations and startups. It is the promise of innovation and community that most contributes to co-working appeal. Behavioral studies carried out in the past have demonstrated that sharing and collaboration may improve creativity and innovation in the workplace and many organizations and small businesses have realized that they gain more from working together, rather than alone. This kind of cooperative work does not mean that one loses his individuality or independence. Instead, one has the opportunity to share resources and space, while finding commonalties with each other, sharing expertise and know-how, as well as ideas. For small businesses and organizations, indie workers and freelancers, co-working is increasingly becoming a sustainable and viable option. Co-working consists of workers coming together in a shared or collaborative workspace because of one or more of the following reasons: to reduce costs by having shared facilities and equipment, to get in touch with other entrepreneurs and to look for collaboration within and across fields (DeGuzman & Tand, 2011).

The number of co-working spaces is increasing all over the world. The latest estimates from Statista (2016) put the number at around 16 100 co-working spaces worldwide in 2016.

Accelerators

As an entrepreneur, it is probably a goal to launch a business as profitable as possible, but if one looks forward to developing a startup, some help is required and this is where accelerators may be most helpful.

The accelerator sector is still quite recent and the first accelerator, named Y Combinator, was only founded in 2005 by Paul Graham. Initially, it was founded in Massachusetts, but soon moved to Silicon Valley (Cohen & Hochberg, 2014).

These fixed-terms, cohort-based, 'bootcamps' for startups offer instructive and mentorship programs for startup founders, getting them to interact with a broad range of mentors, which includes former entrepreneurs, venture capitalists, angel investors and corporate executives. In the end, there is a public pitch event, also named 'Demo Day', during which the graduating cohort of startups companies present their businesses to a group of potential investors (Hochberg, 2015).

Therefore, accelerators constitute a new incubation model, which has developed into an umbrella term for any program that provides planned mentoring, networking opportunities and access to funding. During the last ten years the popularity of accelerator programs has significantly increased all over the world, as a way of providing assistance for early–stage ventures. These programs usually provide space, money, mentoring and guidance to classes of entrepreneurs to help them rapidly grow and turn their idea into a concrete and real business and they may be funded by a combination of investors, public bodies or large corporations (Clarysse et al., 2015).

Accelerators usually help ventures define and build their initial products, identify promising customer segments and secure resources, including capital and employees. Accelerator programs are usually time-limited programs, lasting around 3 months and they tend to provide a small amount of seed capital (Cohen & Hochberg, 2014).

Initially, many accelerator programs were generalist, accepting entrepreneurs whose businesses were directed at a variety of different industry verticals. Recent years have seen the emergence of accelerators that focus on a specific industry (vertical accelerators), such as Surge in Houston, Texas which focuses on acceleration of energy startups (Cohen & Hochberg, 2014). There are other programs that an accelerator may provide, such as pre-acceleration or events such as hackathons.

2.3.6 Investors

Apparently, the hardest time to receive financing for a venture is the time when it is most necessary, which is throughout the development and startup stage. Unlike fairly established companies, new ventures do not have past performance to count on, in order to show potential investors how valuable they may be. Furthermore, this type of business is thought to be quite risky considering the investments that investors can make (Rodriguez, 2011). Therefore, the author concluded that finding financing for

an early venture takes time and hard work, which may be exasperating for entrepreneurs at times. Preston (2007) agrees that the greatest challenge for entrepreneurs in starting and growing a company is simply related to money. Financing a venture may be a time-consuming, complicated, inefficient and frustrating process. Some of the traditional funding sources are business angels, venture capitalists and commercial banks that have a variety of investment and funding opportunities.

Table 2.2 illustrates the main and secondary sources of financing available for new ventures. The red shading shows the main form of financing available and the gray shading indicates secondary sources for financing.

Table 2.2 - Sources of new venture financing

	Development	Startup	Early Growth	Rapid Growth	Exit
Bootstrapping					
Friends and Family					
Angel Investors					
Venture Capital					

(Source: adapted from Emily Rodriguez, 2011)

Business Angels

Typically, entrepreneurs begin by using their personal savings or asking for financial support from their relatives, so that they can fund the venture. As the venture takes off and time goes by, more financing is needed. However, until it proves to be successful, it is rather hard to receive funding from other entities such as venture capitalists or banks. This leads to a gap in financing that is often bridged through a source of funding named Angel Financing (Rodriguez, 2011). According to Preston (2007), the term 'angel investor' has its origin in Broadway plays. Several decades ago, those who funded this type of entertainment were called angels. However, just as the word 'entrepreneurship' has different definitions, 'angel investing' does not have a widely accepted definition too (Preston, 2007). Hellmann & Thiele (2014) simply define angel investments as investments by wealthy individuals into startup companies.

Nowadays, angel investors are considered to be one of the best providers of early stage funding. According to Hellmann & Thiele (2014), over the last decade, angels have become a more important source of early stage funding for entrepreneurs. These authors have based their statements on a research by Crunchbase (www.crunchbase.com), in which it was concluded that the US angel market grew at an annual rate of 33% between the years of 2007 and 2013. In a 2011 report of the OECD, the size of the angel market was estimated to be roughly comparable to the venture capital market (Hellmann & Thiele,

2014). Angels invest with anticipation of a healthy return on their investment. They tend to have among the most lucrative returns, which matches the high level of risk they take when they decide to provide the earliest investment fund in a venture. As other investors, angels have an expectation of financial return but they also have many other attributes, as it is possible to see in table 2.3. There is a wide variety of Business Angels in the market, so it is important to realize that no two angels are exactly alike or will have the same investment criteria (Rodriguez, 2011).

Table 2.3 - Angel investors' attributes

Angel Investors' attributes
Have a sense of social responsibility and enjoy community involvement
Take a role in the entrepreneurial process
Act as mentors and advisers to the entrepreneur
Provide early-stage investment dollars
Invest regionally
Invest smaller amounts at a time
Invest their own money
Are able to tolerate the loss of their entire investment
Have a varied portfolio
Take a long-term view of their investments

(Source: adapted from Preston, 2007)

As Preston (2007) stated, angel investors are also known for their willingness to bring knowledge to companies during their startup phase. Many business angels are successful entrepreneurs who have managed to become successful in their community often due to the local support for their own business. Therefore, they are now able to contribute to the wealth of the community through the support of other young and promising companies. Angels typically invest in industries they are familiar with and understand, which commonly means investing in the same field as their earlier successful endeavors. Therefore, they provide connections to potential customers, vendors and other resources, as well as potential additional financing sources. Regarding the early-stage investment provided by angels, there are statistics showing that they are the main source of outside capital for very young companies. However, angels cannot invest the large amounts of money that venture capitalists have at their disposal and they must be able to tolerate the complete loss of any or all of their investments. They usually invest in sectors similar to the ones venture capitalists choose, since angels and venture capitalists alike are looking for high potential returns in growing, prosperous, and future oriented fields. Angels tend to

diversify their portfolios so that their lifestyle will not be damaged by any problem with their investments.

Venture Capitalists

According to Rodriguez (2011), venture capitalists are firms that are organized as limited partnerships that provide funding for properly-developed firms generally in early-growth and rapid-growth stages of development. Moreover, venture capitalists assist with valuable business advice to enhance survival chances (Keuschnigg & Nielsen, 2001). For entrepreneurs of new ventures, particularly those with intangible, mostly intellectual property-based resources, venture capital is an important source of funding for the ongoing operations of the venture (Hsu, 2007).

According to Isaksson (2000), venture capitalism is private capital invested in firms that are not listed on the stock market. The investment tends to be time limited and lasts for some years which, in practice, makes the venture capitalist a joint owner of the company. In order for it to be considered venture capitalism, it is necessary that the investor takes on a role in the firm, such as a representative amongst the board of directors.

Venture capital plays an important role in high technology entrepreneurship and economic change. Venture capitalists use their experience as well as their contacts to reduce many of the information and opportunity costs related to new business formation (Florida & Kenney, 1988).

Due to the high failure rate for web startups, venture capitalists diversify their general investment by splitting it into several smaller ones with the vision that a minority of the companies will have such growth that will pay off for the losses of the rest (Provatas, 2013). Therefore, venture capitalists are interested in companies that have potential for high growth and they do not only provide companies with money but they also support them with their experience and coach them during their first stages.

Venture capitalists are long-term investors, which means they expect return from their investment after 5 to 10 years. Their goal is a profitable exit from the company and therefore they are not interested in running the company for a very long time. Venture capitalists typically hold the strongest rights regarding the choice and timing of exit (Provatas, 2013).

Chapter 3

Accelerators

This chapter provides a more in-depth analysis of accelerators, which are entities that provide support to startups during their development. Therefore, this section includes the definition of what an accelerator is, the differences between an accelerator and an incubator, an overview of the rise of accelerators across the world in recent years, the distribution of these entities across the globe, the different types of accelerators and programs and other important concepts related to equity, funding, internationalization and KPIs.

3.1 Definition

Accelerators seem to have some key distinctions with incubators. The goals of incubators and accelerators are to ultimately have the startups progress and grow, but their motivations for doing so are quite different (Chang, 2013). Regarding the 'business accelerator' itself, it still has no final definition up to this moment, but it may be generally defined either as:

- A late-stage incubation program, assisting entrepreneurial firms that are more mature and ready for external financing or;
- A facility that houses a modified business incubation program designed for incubator graduates as they ease into the market.

There is another definition, more expansive and less measurable, which is similar to the virtual incubator model. Moreover, some industry professionals use the words 'business incubator' and 'business accelerator' interchangeably (Harper-Anderson et al., 2011). Accelerator programs are a legitimately new model of support for entrepreneurs that combines various features that used to be provided unconnectedly in the past. However, there still is not a widely accepted definition of accelerator programs, which confuses the media and the marketplace and complicates research (Cohen & Hochberg, 2014). Barrehag et al (2012), also claim that there is no broad agreement regarding the definition of a seed accelerator.

In that way, Cohen & Hochberg (2014) have defined the 'seed accelerator' as a 'fixed-term, cohort-based program, including mentorship and educational components, that culminates in a public pitch event, also known as Demo Day. According to these authors, these programs may be profit or non-profit oriented and there may be variations between them related to the amount of equity taken, the length of the mentorship and educational program, the availability of co-working space and in industry vertical focus. Seed accelerators may be connected to different entities, such as venture capital firms or angel groups, corporations, universities or local governments or non-governmental organizations (Cohen & Hochberg, 2014).

According to NUMA (2014), there are some defining characteristics of an accelerator. The type of startups accelerated is usually scalable tech startups. Moreover, the accelerator programs are usually structured around three different phases:

1) set-up, deal flow and selection;
2) kick-off of the program through Demo Day;
3) follow-on investments and exits.

Accelerator programs are highly selective and the selection process may be quite rigorous, often having low selection rates. Regmi, Ahmed, & Quinn (2015) agree with the former statement and claim that one of the defining characteristics of accelerators is that they have a competitive application process, unlike other business assistance programs. This selection process requires more than a one-time interaction, often including numerous stages, such as pre-screening, meetings, final pitch and Questions & Answers sessions. The criteria that is used in the selection process is usually based on:

- Founder team: qualities such as resourcefulness and openness to criticism and change;
- Vision: ambitious, global and disruptive;
- Product: Accelerators are increasingly interested in teams that have a solid prototype and, if possible, several users or a few solid customers.

(NUMA, 2014)

The companies that are accelerated are usually at different stages, varying from pre-seed to seed stages, with accelerated startups falling more and more into the seed stage phase. The programs tend to run in a 3 to 5 month time range, which is a significant difference from incubators, where the programs are usually much longer, with a 1 to 2 years' time frame. The class size is usually small or manageable, so that it is possible to give more personalized and significant advice and support to the startups. In order to provide that type of support, accelerators count on a community of experts, mentors, program alumni and many others to provide assistance to the startups during the program. Finally, there usually is a Demo Day at the end of each program, in which startups pitch in front of investors, media and other important players from the ecosystem (NUMA, 2014)

Miller & Bound (2011) agree that accelerator programs have a number of distinctive features that set them apart from other entities that look forward to supporting startups during their lifecycle. Up until recently they have been driven almost exclusively by private investors, and primarily focused on the web and mobile sector. Therefore, the former authors claim that the accelerator program model is based on five main features, which are defined as follows:

- An application process that is open to all, but tends to be very competitive;
- Provision of pre-seed investment, generally in exchange for equity;
- A focus on small teams, rather than individual founders;
- Time-limited support including programmed events and rigorous mentoring;
- Cohorts or 'classes' of startups rather than individual companies.

On the other hand, Dempwolf, Auer, & D'Ippolito (2014) provide a simpler definition, claiming that accelerator programs help entrepreneurs bring their technologies, ideas or products into the marketplace and ideally lead entrepreneurs to develop viable businesses. Accelerators are valuable because they allow startups, investors and entrepreneurs to connect with each other and the seed accelerators have become a way of shaping startups into scalable and sustainable businesses (Barrehag et al., 2012). The accelerator business model describes the structure that the accelerator has in order to obtain its objectives, how it prices the products and services that are provided, and how it generates income and, when applicable, profit. The majority of the current accelerators have operated in the software or mobile applications arena, an industry that has specific characteristics such as the low capital requirements and short prototyping period. The accelerator's revenue assumptions are then built around fast growth and large-scale markets. These factors are the basis for a business model that makes it possible for the accelerator to operate sessions that last around 3 months with manageable size cohorts and modest equity percentages in the participant startups. The focus on technology is a key factor that influences the accelerator business model, differentiating accelerators from other entities that provide support to startups. The expression "technology focus" means that the accelerator is mainly focused on startups in a relatively narrow range of related technologies (Dempwolf et al., 2014)

3.2 Differences between an accelerator and other entities

Accelerators are often confused by the media, researchers and policy makers, with different entities such as incubators and angel or seed stage investors (Cohen & Hochberg, 2014). As it was previously mentioned, accelerators derive many of its features from incubators.

Incubators typically provide their companies with programs, services and space for different amounts of time based on the company needs and their incubator graduation policies. On the other hand, the majority of accelerators take a group of companies (also known as a cohort) through a specific process over a previously-defined period of time, culminating in a public pitch event or Demo Day. Accelerators generally make seed-stage investments in each participating company in exchange for equity and numerous incubators do not have this type of financial commitment (INBIA, 2016). Moreover, it is more likely that business accelerators are financed by venture capitalist looking for an opportunity to finance growth potential through defined action plans. Business accelerators will usually offer all of the services offered by a business incubator, but there is a key difference related to the level of hands on-involvement (Dalziel, 2012). Table 3.1 represents the common traits of accelerators and incubators.

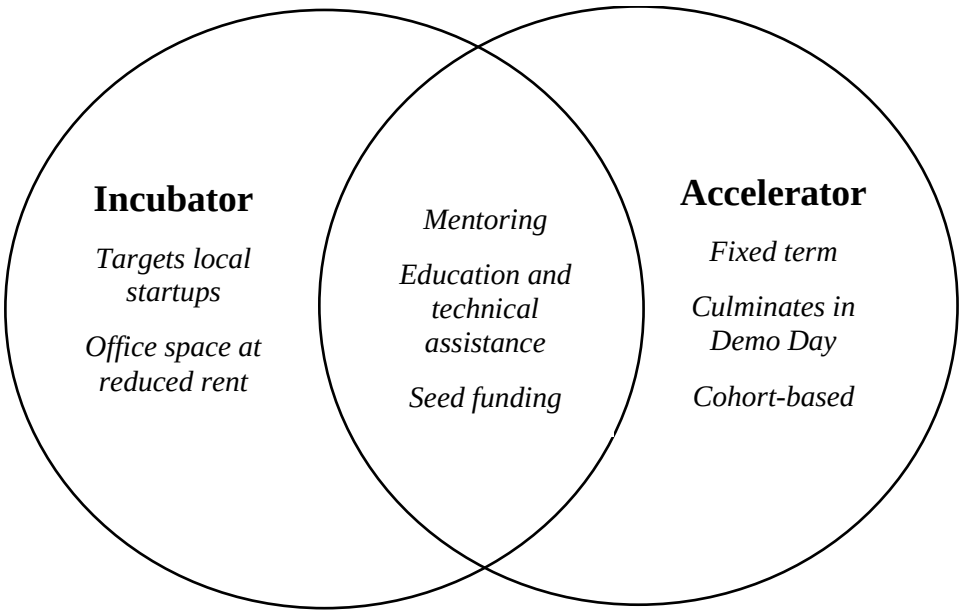
Table 3.1 - Common traits of incubators and accelerators

	Business Incubator	**Seed Accelerator**
Clients	All kinds including science-based businesses (biotech, medical devices, nano, clean energy, etc.) and nontechnology; all ages and genders; includes those who have previous experience in an industry or sector	Web-based, mobile apps, social networking, gaming, cloud-based, software, etc.; firms that do not require significant immediate investment or proof of concept
Selection process	Non-competitive selection, mostly from the community	Competitive selection of firms from wide regions or even nationally
Term of Assistance	1 to 5 or more years (33 months on average)	Generally 1 to 3 month boot camps
Services	Offers access to management and other consulting, specialized intellectual property and networks of experienced entrepreneurs; helps businesses mature to self-sustaining helps entrepreneurs round out skills, develop a management team and obtain external financing	"Fast test" validation of ideas; opportunities to create a functioning beta and find initial customers; links entrepreneurs to business consulting and experienced entrepreneurs in the Web/mobile apps space; assistance in preparing pitches to try to get follow on investment
Investment	Usually does not have funds to invest directly in the company; more frequently than not, does not take equity	Invests up to 18,000€ to 25,000€ in teams of co-founders; takes equity in most investees, usually 4-8%

(Source: adapted from NBIA, 2011)

Figure 3.1 consists of a Venn diagram of incubator and accelerator characteristics, clarifying their main similarities and differences.

Figure 3.1 - Venn diagram of incubator and accelerator characteristics



(Source: adapted from Dempwolf et al., 2014)

Table 3.2 contains the main differences between accelerators, incubators and angel investors regarding duration, cohorts, business model, selection, frequency, venture stage, education offered, venture location and mentorship.

Table 3.2 - Summary of the Differences between Accelerators, Incubators, and Angel Investors

	Accelerators	**Incubators**	**Angel Investors**
Duration	3 months	1 – 5 years	Ongoing
Cohorts	Yes	No	No
Business model	Investment; for profit or non-profit	Rent; non-profit	Investment
Selection Frequency	Competitive; cyclical	Non competitive	Competitive, ongoing
Venture stage	Early	Early or late	Early
Education offered	Seminars	Ad hoc, hr/legal	None
Venture location	Usually on-site	On-site	Offsite
Mentorship	Intense, by self and others	Minimal, tactical	As needed, by investor

(Source: adapted from Cohen & Hochberg, 2014)

It is understandable that accelerators differ substantially from previously known models such as incubators, angel investors and co-working spaces and these differences are believed to have significant importance for the ultimate success of their graduates (Cohen & Hochberg, 2014).

3.3 The rise of accelerators during the last years

According to Cohen & Hochberg (2014), accelerators are a quickly growing phenomenon. The first accelerator, named Y Combinator, was founded by Paul Graham in 2005 in Cambridge, Massachusetts, and soon moved and established itself in Silicon Valley. This first accelerator has been a source of inspiration for many accelerators ever since (Clarysse et al., 2015). In 2007, startup investors David Cohen and Brad Feld, set up TechStars in Boulder, Colorado, in an attempt to transform its startup ecosystem through the accelerator model (Cohen & Hochberg, 2014).

Despite accelerators being considered a legitimately new phenomenon, there has been a strong interest from the private and public sectors in the United States and abroad. The number of new accelerator programs has grown considerably since Y Combinator was launched back in 2005 and the phenomenon has inspired a broad range of events, such as the White House's endorsement of a Global Accelerator Network in 2010, and even Amazon Instant Video series, Betas, which describes the trials of one fictitious accelerator cohort (Dempwolf et al., 2014).

There are now numerous programs in the US that are funding a considerable amount of startups each year and there have already been a number of high profile startup successes coming from accelerator programs (Miller & Bound, 2011).

There are signs that more recently, the trend is also happening in Europe. Telefónica set out to map accelerators, incubators and company builders in leading European countries, creating a valuable portrait of the relative density and scope of accelerators and incubators in ten important European economies. The conclusion that Europe and the USA have a comparable number of startup programs per capita was reached (Salido, Sabás, & Freixas, 2013).

Table 3.3 includes some estimates from different authors about the number of accelerators, programs and the rise that has been happening in recent years.

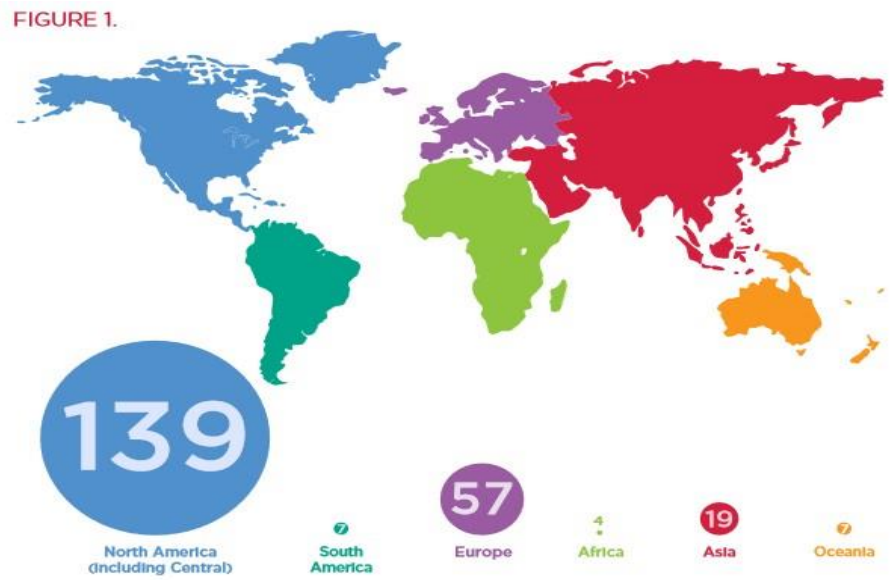
Table 3.3 - Estimates from different authors about the number of accelerators, programs and percentage of rise

Author	Year	Number of accelerators	Number of programs	% Rise	Location
Seed-DB (Clarysse et al., 2015)	2013	213	-		Worldwide
Angel List (2015)	2015	467			Worldwide
Hochberg, 2015	2015	300 to +3000	+3000		Worldwide
Salido, Sabás, & Freixas, 2013	2007-2013			400% rise in the number of accelerators and incubators	Europe
O2 (2014)	2012-2014			+ 110% rise in the number of formal programs operating during these years	Worldwide

The increasing trend in the establishment of business accelerator programs is closely related to the changing economics of starting up (from the startup firm perspective). Costs associated with early-stage tech startups have diminished significantly during the last ten years, making it possible to invest with considerably smaller amounts of money (€10,000-€50,000). In the past, the costs to invest in digital businesses were much higher than that (Miller & Bound, 2011). Nowadays, there are lower technology costs, easier ways to get to customer acquisition and better forms of direct monetization, which have facilitated the process for technology startups to quickly bring a product to the market. The decreasing costs of software and hardware have contributed to the increasing number of startup firms and accelerator programs. New business models have been appearing through the rise of the internet and it became possible to create revenue from the first day of the business (Miller & Bound, 2011).

Figure 3.2 shows where the programs were based in 2014, with the majority of programs (almost 62 per cent) located in North America and another 25 per cent in Europe.

Figure 3.2 - Location of the programs in 2014



(Source: NESTA, 2014)

The catchment area for accelerators is already international and nearly global and founders consider the possibility of relocating across the world and across Europe for a period of approximately three months. At the moment, demand for accelerator programs outstrips supply considerably. However, this growth may be limited due to certain aspects such as the pool of high quality mentors, opportunities for acquisition by large companies, stock market flotation or competition for startup talent with other careers (Miller & Bound, 2011).

3.4 Accelerators in the world

The accelerator and incubator landscape in Europe is diverse, with different geographical models running on different principles. In the UK and France, most accelerators and incubators are concentrated around the national capital while in other countries such as Spain or Sweden, the programs tend to be spread more evenly throughout the territory (Salido et al., 2013). In Europe, there are three leading startup ecosystems: London, Paris and Berlin. Accelerators particularly enjoy these three cities to operate in because they have a sufficiently dense population of entrepreneurial ventures and a dense seed stage funding supply, which results in better circumstances for startups and startup programs to make an impact (Salido et al., 2013). Some remarkable accelerators in this continent are Barclays Accelerator and Bethnal Green Ventures, located in the United Kingdom and Startupbootcamp

Amestardam in the Netherlands. In Australia, there are also some remarkable accelerators, such as Startmate or StartupCamp.

In Asia, the top seed accelerators are JFDI.Asia in Singapore, Sparklabs in South Korea, Launchgarage in the Philippines and The Morpheus and iAccelerator in India (Quora, 2013). According to Future Asia Ventures, Asia is at a critical inflection point where it has the opportunity to shape its own startup culture. For instance, Malaysia is a country that is highly likely to become very trendy for startup activities. During the last years, there was a remarkable development in the startup sector in the country, with programs being funded by the government or by private entities (Deal Street Asia, 2015)

Over the past few years, Latin American countries have also increased their efforts in developing innovation and support techniques for seed stage startups and acceleration programs, both public and private. By 2014, the Latin American startup ecosystem was at an interesting startup phase and there were some places known for their entrepreneurial activity such as Buenos Aires, Mexico City, Rio de Janeiro, Santiago and Sao Paulo. Furthermore, there were impressive initiatives that most people were not aware of in cities such as Belo Horizonte, or Bogota (Fundacity, 2014). Some well-known seed accelerators in South America are, for instance, Start-Up Chile in Santiago, SEED in Belo Horizonte and NXTP Labs in Buenos Aires. In the USA, the top seed accelerators are Techstars, Y Combinator, AngelPad and 500 Startups.

3.5 Different types of accelerators

Innovation accelerators

Innovation accelerators are stand-alone, for-profit ventures that look forward to identifying classes of promising startup companies with fast, high-growth potential, making seed-stage investments in those companies usually in exchange for equity, being part of innovation-acceleration activities with such companies to help them get next-stage funding and cashing out for a profit when these companies are acquired or have successful IPOs (Dempwolf et al., 2014).

Therefore, innovation accelerators are defined as “business entities that make seed-stage investments in promising companies in exchange for equity as part of a fixed-term, cohort-based program, including mentorship and educational components, that culminates in a public pitch event, or Demo Day.” The immediate goal of the accelerator is to help their ventures get next-stage funding, but their primary goal

in the long-term scenario is to make a substantial profit when those companies are acquired or have successful IPOs (Dempwolf et al., 2014).

Social accelerators

Social accelerators have a combination of founder motivations that bridge public and private goods. These accelerators may be interested in profit while relaxing aspects of the business model to accommodate goals that advance the public good. They may be founded in order to accelerate nonprofit and social enterprise startups, adopting at the same time certain characteristics that encourage accelerator profit (Dempwolf et al., 2014).

Social enterprise accelerator programs are precisely designed to help social entrepreneurs create and grow sustainable for-purpose businesses. Whether the founder is at the ideation phase or already in operation, joining a social enterprise accelerator is an adequate way to fast track the progress (Social Good Stuff, 2015) Social accelerators are generally designed to transform the validated idea of the social startups companies to seed funding.

The programs allow startup companies to gain exclusive visibility to early stage investors and other valuable resources such as providing initial investment, technical facilities/development, office accommodation and assistance of experienced mentors, all of which in return of a minor share in the invested startups companies (Menon & Malik, 2016)

An example of a social accelerator is the ARK Challenge in Arkansas, USA. It is mainly focused on Web-based and mobile technologies in the financial information, health information and government services sectors (Dempwolf et al., 2014). Bethnal Green Ventures, located in the United Kingdom, is another example of a social accelerator, since it is looking for early stage technology startups that are tackling problems in the areas of Health, Education, Sustainability and Democracy and Society (Bethnal Green Ventures, 2016). The Foundation for Young Australians (FYA) Young Social Pioneers is a 6-month initiative that backs emerging social entrepreneurs to lead sustainable and impactful social ventures. Since it started, it has helped incubate, develop and scale more than 70 social enterprises (Social Good Stuff, 2015).

University accelerators

Universities seem to recognize the importance of fostering the local entrepreneurial ecosystem and some of them have decided to launch their own accelerator programs. University accelerator programs have various advantages and opportunities, which differentiates them from their private competitors. There are the typical favorable equity arrangements and participants also have an enormous advantage in terms of access to talent and physical infrastructure such as labs and workshops.

University accelerators typically provide seed grants to provide assistance to students through the early stages of development. Unlike for-profit accelerators, university accelerators do not usually take equity stakes in student-founded companies, and they do not usually have a technology focus. Some university accelerators, such as StartX at Stanford, extend services to faculty and alumni, as well. University accelerators provide the same type of assistance and services as other accelerators, which includes mentoring, technical assistance, use of facilities, and networking, having a Demo Day at the end of the program as well (Dempwolf et al., 2014).

There are some university-affiliated accelerators, such as Global Founders Skills Accelerator in the MIT, the New Venture Challenge in the University of Chicago or OwlSpark in Rice University. These university programs usually have requirements related to applicants having some affiliation with the educational institution, and tend to be more focused on the educational opportunities rather than on future profitability potential for the businesses admitted. These programs usually run during the summer months (Hochberg, 2015).

Corporate accelerators

There are many ways for corporations to participate in accelerator activities. At the most basic level, corporations and their executives may join existing private accelerators as mentors or investors. A second model, “Powered by,” has corporations contracting with others to run an accelerator for them. There are also some corporates that decided to partner with other companies to create a jointly-run dual or multiple partnership accelerator. There is another model, which remains completely internal, with companies attempting to accelerate their own internal product teams (Hochberg, 2015).

Recently, there has been an emergence of a new form of corporate innovation activity in the form of the corporate accelerator. Apparently, the emergence of the corporate accelerator has been originated by a

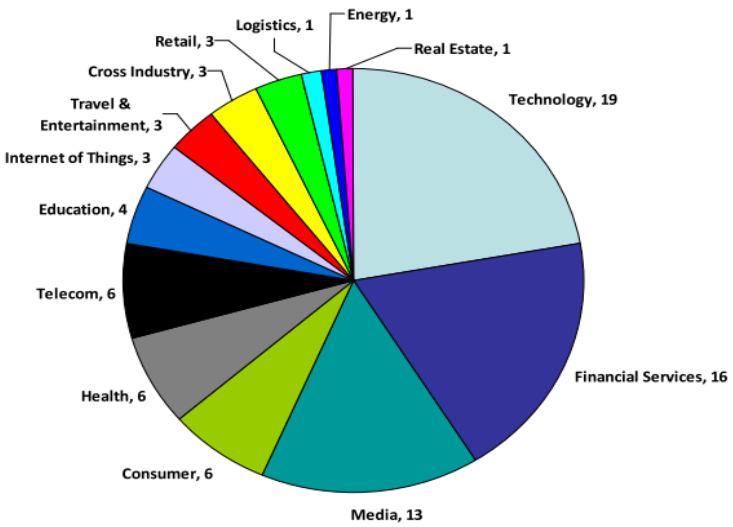
desire that many companies had to bring themselves closer to innovation and gain access to windows on emerging technology (Hochberg, 2015). Corporate accelerators are often similar to private accelerators in structure, usually being cohort-based, but also follow other, more fluid, definitions. Similar to seed accelerators, corporate accelerators offer a well-structured program and financial support for startups to transform their ideas into real and concrete businesses (Linkedin, 2015).

There are also organizations engaged in 'powering' corporate accelerators. The most prominent one is Techstars, and there are programs such as the Disney Accelerator Powered by Techstars or the Kaplan EdTech Accelerator Powered by Techstars. In this model, the outside powering organization provides services such as program creation and management, staffing, marketing and back office services, as well as physical space where requested (Hochberg, 2015).

It is believed that this phenomenon is particularly related to the threat of disruption from startups (Linkedin, 2015). Startups are considered to be more flexible and agile than large corporates, which definitely facilitates the process of innovation amongst them. Large corporates, on the other hand, have processes and internal bureaucracy that can make it hard to launch a new project or idea.

Most corporate accelerators are generally vertically focused. However, the approach varies substantially from corporate to corporate: some of them have committed to their programs in the long-term, while others have started and stopped their programs many times, because of the ever-changing economic and business climate (NUMA, 2014). Not all corporate accelerators are the same and the level of involvement of the company can vary and this variation may also happen to the value the program brings. Figure 3.3 describes corporate accelerators divided by sector focus. The majority of corporate accelerators are focused on Technology, Financial Services and Media.

Figure 3.3 - Corporate Accelerators divided by Sector Focus



(Source: Future Asia Ventures, 2016)

Nowadays, there are many different global startup hubs such as Hong Kong, London, New York, Silicon Valley and Singapore that are considered remarkable spots when it comes to the launching of international corporate accelerators. Bangalore, Berlin and Tel Aviv also have great potential in this field (Asia & Page, 2016)

In Europe, there are not many startup acquisitions by European companies, so it is important to improve the connection between the companies and the startups.

Table 3.4 contains some accelerators that have a corporate sponsor.

Table 3.4 - Examples of Corporate Accelerators

Accelerator	Corporate Sponsor
Siemens Technology Accelerator	Siemens
Nike+ Accelerator	Nike, Inc.
Citrix Startup Accelerator	Citrix
Media Camp Academy	Turner Broadcasting System and Warner Bros. Entertainment, Inc.
Volkswagen Electronics Research Lab Technology	Volkswagen Group of America

(Source: adapted from Dempwolf et al., 2014)

3.6 Benefits arising from accelerator programs

Accelerator programs have benefits not only for startups but also for other stakeholders that are part of the entrepreneurial ecosystem.

3.6.1 Benefits for startups

Miller & Bound (2011) identified the benefits that startups get when joining an accelerator program:

- **Funding**

The former authors found out that the money that accelerator programs offer is an important part of the package and is very appealing for people applying to the programs. The participants that were

interviewed for Miller & Bound's research (2011) mentioned that the main advantage of the funding was that it allowed them to focus on their businesses full-time, not having to work on the side.

- **Business and product advice**

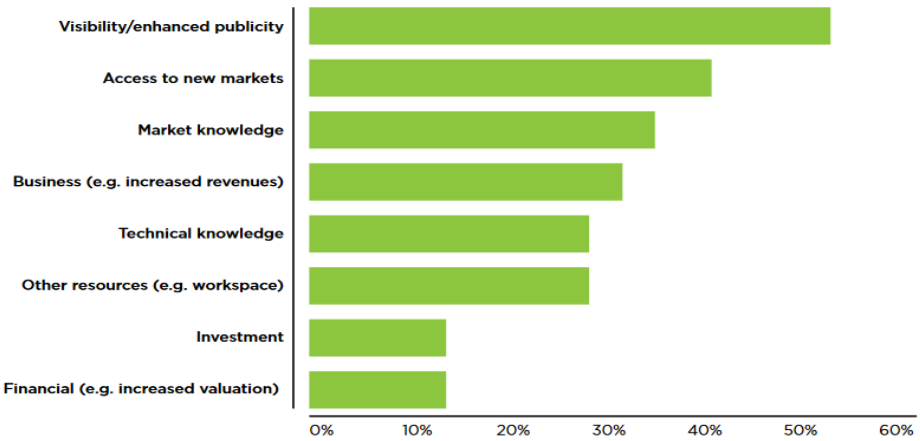
Accelerators offer founders the opportunity to meet people in the tech industry (which includes people from successful startups as well as in larger tech businesses), and get feedback regarding their product and company. Accelerators usually bring in a range of education resources and tools for the founders and employees of their participating companies. The education may be formal, which includes training in finance, accounting, marketing and others, or informal, which may contemplate discussions with organizers, mentors, and other participating companies.

Accelerators put a significant effort in to bringing in brand name speakers and mentors. However, it is important to note that the efficacy of these programs is still unproven. It is hard to reach conclusions about whether or not the educational component of an accelerator plays an important role because it is hard to separate out the effect of the education from everything else that an accelerator provides (Entrepreneurship Review, 2011).

- **Connections to future investment**

Accelerators give founders introductions to investors and allow them to interact with each other, which can be hard to get for first-time and unexperienced founders. Accelerators are known for providing a quality pipeline of new companies, which leads to many investors going to accelerator events. Gathering these people together in the same place is a rare opportunity for new ventures. According to NESTA (2016), 75% of startups and scale-ups who had collaborated with corporates reported their experience to be beneficial. Many startups and scale-ups hope to gain a large firm as a customer, but they also identify many other benefits, which are briefly represented in figure 3.4.

Figure 3.4 - Collaboration benefits reported by startups and scale-ups



(Source: NESTA, 2016)

- **Validation**

According to Miller & Bound (2011), being accepted in the accelerator is the validation that the startup has potential. This increases the founder's confidence, as well as the credibility of the business.

- **A peer support group**

During the accelerator program, founders have the opportunity to meet their accelerator peers, and they provide each other mutual support.

- **Pressure and discipline**

Founders mentioned that one positive aspect of being part of an accelerator program was that they had a deadline and a basic framework to get there.
(Miller & Bound, 2011)

According to Entrepreneurship Review (2011), accelerator organizers put a significant effort into connecting their companies with mentors, investors and other entrepreneurs, hoping that these connections may be helpful regarding their growth. This networking effort apparently reduces search costs for firms. Search costs are the time, energy and money an agent or firm wastes while researching a product or service for purchase. Search costs may be external, which includes the monetary and opportunity cost of acquiring information, as well as internal, which contemplates the mental effort needed to find and sort required information. One is only able to choose whether or not to incur external costs, but one is not able to modify their level. Internal costs are more determined by the agent or firm's ability to undertake the search, which depends on intelligence, prior knowledge, education and training.

Moreover, entrepreneurs are faced with search costs in a wide range of situations, which includes finding other founders, recruiting employees, building an advisory board and raising capital. Accelerators are meant to help lower the cost for entrepreneurs to reach higher quality people, services, and funding, increasing the odds of them doing so. An active mentoring process definitely increases network connections, which creates a more liquid market of intellectual and monetary capital, although to an unknown extent. Chang (2013) agreed, mentioning that the value added by accelerators cannot be understated. Due to these organizations, entrepreneurs significantly decrease their search costs in the process of finding potential investors, mentors or partners and they have access to various business development resources. Offering entrepreneurs the opportunity to develop their network, gives them a considerable advantage in sustaining their business and potentially developing key relationships to scale and obtain additional rounds of funding (Chang, 2013).

3.6.2 Benefits for other stakeholders

The benefits arising from the accelerator programs are not limited to the direct impact on founders and accrue to stakeholders in the broader technology community. Due to accelerator programs, it is possible to scout new talent, to filter down to only the highest quality and to provide a main point for advisors and investors to focus their time and resources (Miller & Bound, 2011)

In that way, angel investors reduce the need for due diligence as that role is performed by the accelerator, reduce the cost and time required to find new companies to work with and they also have the possibility of meeting other investors and company founders (Miller & Bound, 2011). On the other hand, Venture Capital firms are able to improve deal pipeline, creating more high quality startups and are able to interact with new technology and map trends in startups. Moreover, they have the opportunity to meet other investors and company founders (Miller & Bound, 2011). For VCs, accelerators act as valuable intermediaries that provide VCs with third party information. Successful startups that graduate through accelerators may have the chance to be introduced to other angel investors and perhaps venture capital financing. Therefore, accelerators offer a considerable amount of signalling for VCs but can equally suffer from mediocrity, just as the failed startups they may have accepted (Chang, 2013).

Angel investors and venture capital investors have supported accelerator programs because they create a pipeline of investable companies, scouting for and filtering talent and connecting them with a number of mentors and valuable resources. The connections they create have an encouraging effect on the local ecosystem where they operate, providing a focal point for introductions and improving the relationship between founders, investors and other stakeholders (Miller & Bound, 2011). Therefore, accelerators address the funding gap for startups and the information gap for investors by acting as network brokers. (Dempwolf et al., 2014). Large technology firms may benefit from accelerator programs as well, especially because of the talent scouting for new employees, the possibility of getting new customers for their platforms and services and the possibility of associating their brand with supporting new businesses (Miller & Bound, 2011).

Therefore, and taking into consideration the benefits mentioned above, the accelerator phenomenon has been cited nationally and internationally as a key contributor to the rate of business startup success (Dempwolf et al., 2014).

3.7 Different types of acceleration programs

3.7.1 Pre-acceleration

According to the Whitepaper '(Pre) Accelerate towards the future' (2015), pre-acceleration programs generally target first time entrepreneurs and recent graduates, as well as unemployed people, researchers and students. These programs are focused on very early and pre-seed stage businesses. Pre-acceleration programs are known for working in different stages, that go from having people that do not even have an idea or team to market validation. Moreover, the duration of these programs is shorter than the traditional accelerator programs, usually lasting around 1 to 8 weeks. Every program has a robust presence of experienced mentors and some of them have supermentors/godfathers that work exclusively with one team during the whole program. In the majority of the cases, there is a Demo Day at the end of the program, in which the various teams pitch in front of judges, investors, mentors or even the general public. It is quite common for the programs to include subjects such as Customer Validation, Marketing, Pitch, Product Development, Prototype and Business Model Canvas.

Because of its fragmented geography, a considerable number of pre-acceleration programs have emerged in Europe over the last couple of years. There is a wide range of programs, varying from the 'light-touch' versions, such as Startup Week-end or Startup Bus, to extended and more intense programs such as Tetuan Valley or Startup Pirates. Other pre-accelerators are the Y Combinator Fellowship or the 500 Startups Pre-Accelerator in Oslo (NUMA, 2014).

Unlike equity-based accelerators, that usually focus on the financial success of the startups that take part in the programs, pre-accelerators tend to be dedicated to skilling-up the entrepreneurs they work with and building the overall tech ecosystem. This is especially important in certain ecosystems where the country culture is not particularly entrepreneurial. Therefore, pre-acceleration programs have this significant role in challenging and changing some cultural handicaps such as penalization of risk, lack of ambition and lack of self-confidence (NUMA, 2014).

Since these program have been around for even less time than traditional accelerator programs, the business model is not yet proven and there is some uncertainty regarding the viability in the long-term. On the other hand, these programs have already done a quite effective job at introducing people to entrepreneurship and educating them about what it takes to build a business (NUMA, 2014).

3.7.2 Generic acceleration

Generic Acceleration may also be named horizontal, generalist or unspecialized acceleration. The "horizontal" theme refers to accelerators focused on startups that intend to develop a product or service that meets a similar customer need across in various market niches. Therefore, horizontal accelerators may be most suitable to startups targeting a specific product or technology that has customers in more than one market. Similar to vertical accelerators, the horizontal theme is chosen to leverage the distinctive strengths of the regional investor community that are interested in that specific type of product and to build a mentor network around that. The main difference between a vertical accelerator and a horizontal accelerator is that the first one aligns with startups targeting specific markets and the horizontal accelerator aligns with startups targeting specific technologies and products (Linkedin, 2015).

Amongst the horizontally-themed accelerators, there are many popular themes such as Internet of Things (IoT), Cloud, Hardware, Software as a Service (SaaS), Mobile technology, Internet and Enterprise products. Work-Bench is a horizontal accelerator located in NYC with enterprise software as its area of excellence. Outside the USA, Cisco, Intel, and Deutsche Telekom have partnered to create Challenge-Up!, a horizontal accelerator to help IoT/IoE startups get to the market faster (Linkedin, 2015)

3.7.3 Vertical acceleration

Hochberg (2015) claims that perhaps the most remarkable trend over the last two years has been the movement towards vertical acceleration, which relies on accelerators that are oriented towards a particular industry. At first, those who got into the accelerator space were mainly described as 'generalists,' indifferent to the industry being served by their applicants. Recent years have seen a transition towards industry-specialization, primarily in industry verticals characterized by specific knowledge or regulation, such as healthcare or energy. However, an examination of the accelerator portfolio companies suggests that both generalist and specialist programs had a common tendency with regards to software and services startups, regardless of whether they generalized across the industries those startups were to serve or specialized in a specific industry, such as healthcare IT.

A vertical focus offers the opportunity to see the bigger picture better, because there is a better understanding of the competitive landscape, the best practices and a know-how related to discovering the real disruptive ideas. Vertical accelerators can also be called specialist models and many of them are

established by nonprofit organizations. Each of these programs tries to provide unique tools and possibilities in its area of expertise (Haaretz, 2015).

According to Linkedin (2015), numerous new vertically-themed accelerators have appeared in large metropolitan areas. For accelerators, the vertical theme is chosen to leverage the particular strengths of the regional investor community in that particular vertical market and to create a mentor network around it. Metropolitan areas are often thick with commerce, finance, insurance, marketing and advertising, media, culture, art, fashion, research, education, as well as leisure and entertainment. Because of that, there are many groups that manage and provide assistance to companies in such large vertical markets. Moreover, there are many investors with various funds indexed for those markets. For new accelerators, the vertical themes are so essentially rooted in the community that great resources are available in order to fund cohorts of startups and to improve their networks.

The vertical programs tend to have the same structure as traditional horizontal programs, but are different because they give startups access to domain experts and mentors as well as certain resources that horizontal programs cannot usually provide, such as access to production facilities, manufacturers or retailers (NUMA, 2014). For instance, if we consider the hardware business sector, we can understand that it would be practically impossible for a non-hardware focused accelerator to provide that same sort of value. Those who work for a vertical accelerator have deep and differentiated knowledge regarding the field of interest and can spot barriers others would not be aware of. When accelerators and their people decide to focus on a specific field, they become absolute and unquestioned experts in such field.

Of the vertically themed accelerators, the most common themes include financial technology (FinTech), health and healthcare, education technology (EdTech), energy, media, real estate and fashion. Accelerators also exist in diverse vertical markets including hospitality, non-profit, film and food. It remains to be seen how these will survive over time and if they will pivot with market evolution. There are some well-known vertical accelerators such as Blueprint Health, which is a healthcare tech accelerator or Food X, which is a food business accelerator (Hochberg, 2015).

3.8 Funding

There are two important elements related to the funding structure of an accelerator: the funding of the accelerator itself and the funding available to startups (NESTA, 2015).

3.8.1 Funding of the accelerator

According to NESTA (2015), most programs got the major part of their working capital from shareholders, such as investors, corporates or public authorities. According to NESTA's research, few of the programs that were interviewed were able to get revenue from investments in the startups which they support, but this could be happening because such programs were still relatively new and it would take some time before having evident exits in their portfolio companies.

Many accelerators manage to raise operating funds through large corporate sponsors. According to Miller & Bound (2011), it is common for accelerator programs to be sponsored by law and accountancy firms to give them business development opportunities with new startups (Miller & Bound, 2011).

Local government organizations may sponsor accelerators as a way of getting connected to the community. The government and private donors may give grants to accelerators, contributing to support the entrepreneurial ecosystem. There are many benefits that come along, such as the promotion of local jobs, the development of the local economy and the city itself becomes considerably more attractive to large corporations. In Washington and across the country, the number of incubators and accelerators supported by the government has grown, which is understandable because it has become a priority to support entrepreneurs in their journey, spur innovation and help developing local economies (The Washington Post, 2014). However, if accelerator programs are fully paid for or run by public sector organizations, they risk becoming disconnected from the local investment community, which is highly unadvisable (Miller & Bound, 2011)

Though many accelerators have been founded and funded by private investors, there is this trend of accelerators getting public funding on both sides of the Atlantic. The European Commission and the U.S. Small Business Administration are interested in the accelerator sector, which may represent an expanded role for public support for accelerators. The European Commission launched the Startup Europe's Accelerator Assembly, which looks forward to encouraging Internet entrepreneurs to start and grow business in Europe (SSTI, 2013).

It is very common for accelerators to hold various events, which is beneficial for the community of startup founders, investors and others due to the networking opportunities, for instance. Those who attend such events are charged a certain amount of money to help covering the costs. Some accelerator programs also put together hackathons and others run large industry events to generate operating cash. Holding these events takes up resources and money, but if enough cash is generated, it is possible to support one or two resources that can help with other activities and tasks at the accelerator (Best Engaging Communities, 2015). According to NESTA (2015), there are some accelerators diversifying

their model so that they can source alternative revenue through the organization of events and workshops. For instance, TheFamily organizes a lot of events which they sell tickets for online, and this has turned into a profitable event business.

Entrepreneur-in-Residence programs are relatively recent and are also part of the funding structure. Employees that work for large companies or those at smaller ones who want to learn more about the entrepreneurial sector, end up spending time at the accelerator in exchange for a fee. During the program, they learn about the whole process from the beginning until its ending. The knowledge they get is undeniably valuable and the participants end up becoming investors or entrepreneurs and return to their companies where they may learn about lean methodologies, innovation approaches and other aspects. The programs are quite intensive, lasting around 6 to 12 months (Best Engaging Communities, 2015).

On the other hand, accelerators have begun to charge a portion of the money they have invested as a fee for the space used during the program. These rentals are common amongst co-working spaces, but some accelerators have also taken this measure (Best Engaging Communities, 2015).

Research reports have been getting a lot of interest from companies, and accelerators can be most useful for that purpose. These research reports are usually focused on certain aspects and companies can pay up to €50K for this service (Best Engaging Communities, 2015). Larger corporations are also interested in recruiting talent, acquiring companies and learning about new disruptions and innovations. Sometimes, they pay a certain amount of money to accelerators, because they can help them with this specific function, since they are used to looking for disruptive and talented people who want to launch innovative businesses. Large technology firms may support accelerator programs as well because they see the business opportunities of new startups that use their technology. For instance, Facebook ran their own accelerator program in California for services built on top of their platform and have now partnered with Seedcamp in Europe with a similar objective (Miller & Bound, 2011).

There are accelerators associated to venture capital funds and other types of investors, who consider the accelerator as part of their investment strategy. They support the company from its beginning, are involved in product development, its adaptation for marketing and facilitate the connection between startup founders and potential customers. By doing so, the risk involved in their investment is substantially reduced. In this model, the accelerator usually receives shares in the companies, and has its own funds ready for investment in the companies in later stages. For the investors, one of the most important measures of these startups is their likelihood for a major exit (Haaretz, 2015).

3.9 Equity

It has become an industry standard for accelerators to demand equity in exchange for startups' participation in their programs. However, according to experts, this is quite risky. Although programs might provide money, access to domain experts and investors, they cannot guarantee success or even survival (Crain's New York Business, 2014).

Accelerators typically take 6% to 8% of a company for a cash infusion of about 20,000€, an exchange that values a startup with no other investment capital at about 400,000€. Some accelerators offer convertible debt, which can be turned into equity, or ask for as much as 10% equity (Crain's New York Business, 2014). Hoffman & Radojevich-Kelley (2012) stated that accelerators, in exchange for funding, take a 5 percent to 6 percent equity stake of their participating boot-camp venture. Most accelerator companies state that they have no interest in controlling the nascent firm. Virtually most accelerators require a small amount of equity with an increased equity requirement for additional angel or Venture Capitalist rounds of funding.

The equity cost to attend accelerator programs varies greatly across and within countries (Salido et al., 2013). European accelerator programs vary widely in terms of the amount of equity they ask in return for funding or for accepting a company into their program.

Based on the survey that was carried out by Clarysse et al., (2015), the equity stakes were generally made on a dilutable basis, with only a small number of accelerators offering them on a non–dilutable basis. Some accelerators offered some type of follow–on funding for their startups, which mirrors the challenges that startups face in securing investment instantly after an accelerator.

The funding model tends to vary from one accelerator to the other, but they exclusively offer funding at levels usually occupied by business angels, who make investments primarily less than 750,000€. For instance, Y Combinator makes small investments in return for small stakes in the companies that are financially supported. On the other hand, MassChallenge has once awarded 16 teams prizes of 50,000€ to 100,000€, taking no equity at all (Entrepreneurship Review, 2011).

Experts say that entrepreneurs should think carefully before they agree with such deals, especially if they have raised or can raise money on their own. Sometimes, the equity stake values the company significantly below what the larger market would value it. A 2011 study regarding 29 accelerators in North America found out that graduates of approximately half of them had not raised any money in venture money. On the other hand, accelerators consider that the equity stake is a fair trade-off and a reason for that is that many companies have gotten their first customer through the accelerator's network (Crain's New York Business, 2014).

3.10 Internationalization

Accelerators usually think of going global as a sustainable option, because no one knows where the next big idea will come from (The Huffington Post, 2015). The decision to go international can be quite advantageous because it allows startups to enter new markets in different places and countries which is important, since an accelerator's primary responsibility is to help launching well-succeeded businesses (NUMA, 2014). Nowadays, there are many accelerators that develop their activity in many different countries and there is an estimate from Seed D-B that puts the number at around 225.

For instance, there are many startups in Canada that look forward to going international from the very beginning, and this happens because they know that in Canada there is a relatively smaller population, when compared to the USA. There are many other startups around the world worrying about this issue as well. Going global is not only recommendable because of the possibility of reaching different markets, but also because it allows accelerators to gain an advantage. Having or not an international presence can be one of the reasons for success or failure (Harry, 2015).

Furthermore, accelerators keep in mind that they have to differentiate themselves from their competitors, so this process of internationalization would certainly give them competitive advantage. As Hochberg (2015) concluded, there has been an expansion of established, US-based accelerator networks into the international arena, with the launching of programs in different locations such as in the UK, Europe, and Latin America. Techstars has opened a program in London and 500 Startups has opened a program in Mexico City, for instance.

Accelerators can definitely be valuable for startups, but sometimes this value is not recognized, due to certain factors such as geographic location (those in less connected geographic areas), lack of strong brand or the fact that the accelerator is part of an ecosystem that is still developing. These accelerators had a lot to offer to the startups that would join them, but the former aspects contribute to the lack of success amongst founders. In that way, accelerators may decide to join accelerator networks, that are becoming more and more recognized internationally. Since both accelerators and startups look forward to expanding globally and reaching different places and markets, it is believed that networks will become increasingly important. European startups would particularly benefit from having access to an international market via a network of accelerators, since they aim to scale. The best networks are the ones that will add value in the process of expanding globally. However, those networks need to carefully structure they offer, not forgetting what the ambition is, and they need to go beyond accelerator exchange programs to deliver more full-service (NUMA, 2014).

3.11 Accelerators' Key Performance Indicators (KPI's)

It is important to keep track of what is happening within an accelerator. Measuring results is an essential part of the process if one looks forward to improving overtime. In order to do that, accelerators work with Key Performance Indicators (KPI) that may have a very diverse nature, according to what the accelerators aim to track and measure.

In that way, an accelerator may be interested in assessing the startup funding rates, partnerships created, the number and total value of exits, tech adoption, wider impact on the ecosystem**,** survival rate of startups that went through the program or the number of startups that are still operational after four/five years since the graduation. Accelerators can also analyze the total market capitalization of startups that have gone through a certain program and the number of startups valued over a certain amount (NUMA, 2014). A measure of whether accelerators are serving the investment community well could be the number of deals and the amount of follow-on investment attracted by the companies that go through accelerator programs.

The metrics may be quite different in their nature, so various aspects may be analyzed such as valuation, fundraising, exits, the survival rate, satisfaction, the ecosystem itself and also corporate metrics (Miller, 2016). Each of these has its own importance and allows the person in charge to have a better understanding of the current situation. If accelerators always keep a record of what is happening, it is possible to make comparisons between different years and different accelerators, which is a very positive aspect for formal analysis of the phenomenon of accelerators. Table 3.5 presents some short and long-term metrics for accelerators and their startup firms.

Table 3.5 - Short and long-term metrics for accelerators and their startup firms

Time Horizon	Accelerator Metrics	Startup Metrics
Short-term (program duration plus 6 months)	Number of applicants Number of participants (cohort size) Number of investors at Demo Day Percentage receiving next-stage funding Percentage acquired Percentage failed	Operational status (operating, closed, acquired) Number of financial investments or number of investors Size of financial investments Number of customers gained
Long-term (expected cashout in 3 to 7 years)	Sources of funding Performance distribution Internal rate of return Network metrics (partnerships created and others)	Sales or revenue Number of employees Rate of return to investors Stock prices (if applicable)

(Source: adapted from Dempwolf et al., 2014)

Startups founders should announce their revenues and talk openly about the number of units sold or customers gained. This share of information is quite beneficial for everyone who is part of the ecosystem (Asia & Page, 2016). Some accelerators, such as Techstars and Y Combinator publish their results: the names of the companies that have gone through their programs, how much money they have managed to raise and how many have exited or failed. However, these results do not show the exact value that the accelerator has added, because there is no way of knowing what would have happened to the company had it decided not to join an accelerator (Crain's New York Business, 2014).

Nowadays, precise measures of quantifying success are still lacking and further research should be conducted in order to solve this problem. It is not always easy to have solid statistics to analyze. In this case, communication and strong relations are aspects of great importance, facilitating the process of gathering information. Some people believe that the metrics that are currently being used may not be the most suitable ones, especially if we consider the startups that are still in the beginning of their development. Others believe that there should be a wider range of criteria, because it is advantageous to have access to as many different statistics as possible, so that the situation may be analyzed from different points of view.

3.12 Future of acceleration

It is possible to try to predict what the future will be like for the acceleration sector. There are some areas of technology that might be possible arenas for accelerator programs, such as physical devices and social ventures (Miller & Bound 2011)

Moreover, the vertical market is expected to keep growing, as explained in a previous section of the chapter. The greatest advantage of this approach is that it can multiply opportunities by tapping into companies with complementary value in the same vertical, building a supply chain. It is also believed that there will be a growth in the corporate accelerators sector. Large companies such as Microsoft or Kaplan, have already launched their own accelerators because they have the opportunity to get involved in disruptive ideas before they become too expensive. A change in focus is also likely to happen in the years to come. The popularity of accelerators and the current competition may force accelerators to balance the major money opportunities with more solid profit centers as the market becomes saturated. Accelerators might start looking for smaller wins by investing in companies that have already seen some level of success (Forbes, 2015).

Additionally, there could be an opportunity for the public sector to improve the efforts of accelerator programs, improve their performance and potentially learn how to provide better support to the startups in a rapidly changing economic environment.

The rapid proliferation of accelerators across the world has raised questions about whether this model manages to be viable and sustainable at the same time. As it was previously mentioned, accelerator programs are relatively recent, so it is necessary to invest in quantitative research regarding their business models, impact on founders, companies and the overall ecosystem (SSTI, 2013). It is important to understand the role and efficacy of these programs, to track performance and to understand what the future will be like for these entities. It is believed that entrepreneurial activity is related to the economic growth, but there is still a lack of theoretical foundation and the community would benefit a lot from further research being conducted (Hochberg, 2015). To sum up, investing in research will allow us to understand the value and impact of these programs to entrepreneurs and local ecosystems, based on factual and rigorous data.

This leads to the purpose of this dissertation, whose aim is to provide a reliable portrait of accelerators worldwide with regards to their current and future trends. This research work will help understand the different aspects of the business models accelerators may have and it will also address some specific research questions. Therefore, this dissertation has a contribution to the research work about accelerators that is still lacking, mainly because this is a quite recent phenomenon.

Chapter 4

Results: Descriptive Statistics

This section presents an overview of the survey that was carried out and a quantitative analysis of the results, based on descriptive statistics. Therefore, a valuable portrait of accelerators worldwide is presented, with an analysis of different aspects of their organizations and business models, as well as priorities and challenges that those may face in the future. Each of the topics that is studied allows the reader to have a better understanding of the nature and characteristics of these entities.

4.1 Overview of the survey

A survey was developed, containing 5 main parts, in order to analyze the current and future trends amongst accelerators worldwide. This survey analyzed different aspects of accelerators, considering the years of 2015 and 2016. When designing the questions to be included in the survey, it was important to design questions that would not lead to confusion or misinterpretation by the respondent, either because of non-comprehensive language or because of an unsuitable answer format. The survey was then sent to more than 200 accelerators worldwide and a total of 50 answers was collected.

Figure 4.1 - Main topics included in the survey that was carried out amongst accelerators

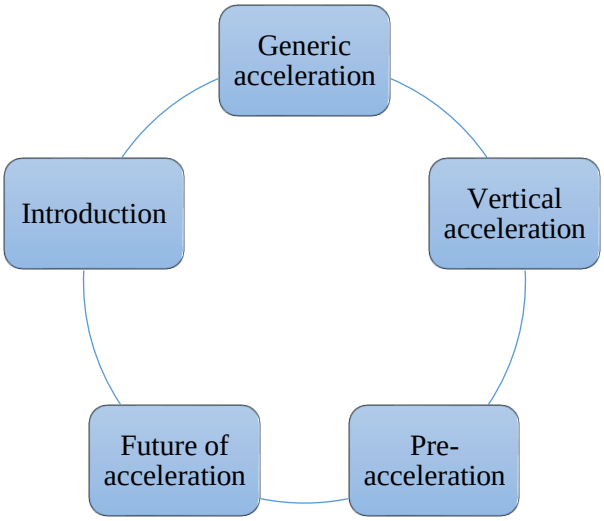
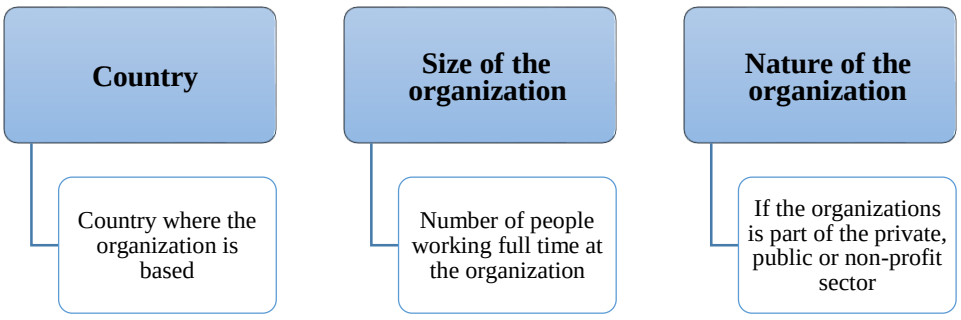


Figure 4.1 represents the main topics of the survey that was carried out. The survey that was part of this research work was entirely conducted in English, and consisted of 38 questions split into five main sections. The purpose of the first section was to identify the general traits of the organizations that were participating in the survey and this section had a total of 8 questions. The second, third and fourth sections were focused on the different acceleration programs that organizations may have: generic acceleration, vertical acceleration and pre-acceleration, respectively. In order to avoid spending unnecessary time, there were guiding questions at the beginning of each section with the purpose of identifying if the respondent had each of the programs in its organization. In case the respondent did not have a specific type of program, he was redirected to the next part of the survey. The generic, vertical and pre-acceleration parts of the survey had a total of 5 common questions, structured in a way that would allow the comparison between different types of acceleration programs by different respondents. For the generic and vertical acceleration parts, there were 2 extra and more specific questions that made sense according to the context of the programs. The final part of the survey included questions that aimed to understand the future of acceleration amongst accelerators, with regards to the challenges and priorities they have, for instance. Appendix I includes all of the questions that were part of the survey.

The introductory questions that were placed in the first section led to identification of 3 profiles of accelerators, as explained in figure 4.2.

Figure 4.2 - Identification of the 3 profiles of answers



Appendix II includes the quantitative analysis based on descriptive statistics that was carried out per profile. The same topics were analysed for each profile, in order to compare the results.

The survey had a varied range of questions so that it would be possible to gather as much information as possible. Therefore, we had access to very diversified information, which facilitated the process of running descriptive statistics on the data. The objective was to have a global picture and understand the scenario of accelerators in general traits, providing a valuable portrait of these entities and therefore contributing to answering the Research Questions.

4.2 Descriptive statistics and assumptions

The quantitative analysis that is presented in this section is based on descriptive statistics. Descriptive statistics is the discipline of quantitatively describing the main features of a collection of information, or the quantitative description itself. Descriptive statistics are different from inferential statistics because they aim to summarize a sample, rather than use the data to learn about the population that the sample of data is believed to represent. There was a focus on univariate analysis, which includes the description of a single variable, including its central tendency (mean, median and mode) as well as dispersion (standard deviation). The shape of the distribution can be described through indices such as the kurtosis, that was also used in this part of the analysis. Other descriptive statistics were used, such as the maximum and the minimum value of the sample.

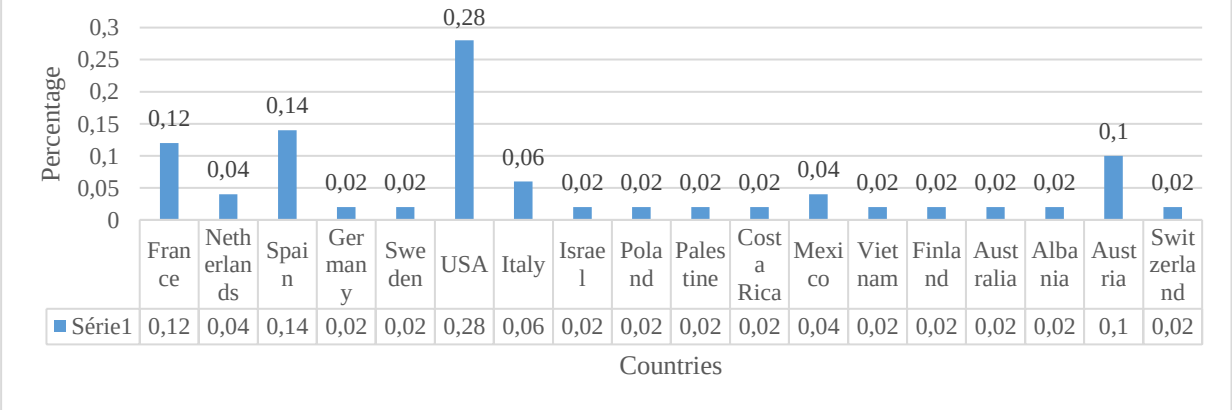
Although a total of 50 answers was collected, not every question of the survey had a total of 50 answers, because some of them were optional and some respondents left those unanswered. In order to analyse the survey regarding the descriptive statistics, some assumptions were made:

- Questions or combination of questions with less than 3 valid answers were not considered;
- Questions that required the classification of a group of options in a likert scale in which the respondent left at least one option not classified were not considered;
- Answers that included N/A (Not Applicable) were not taken into consideration;
- Due to the lack of substantial information, the option "Other: please specify" was not taken into consideration.

4.3 Country where the organization comes from (*Sample size: 50 answers*)

There are 14 amongst 50 organizations (28%) from the USA, 7 amongst 50 organizations (14%) from Spain and 6 amongst 50 organizations from France (12%). Figure 4.3 represents these results.

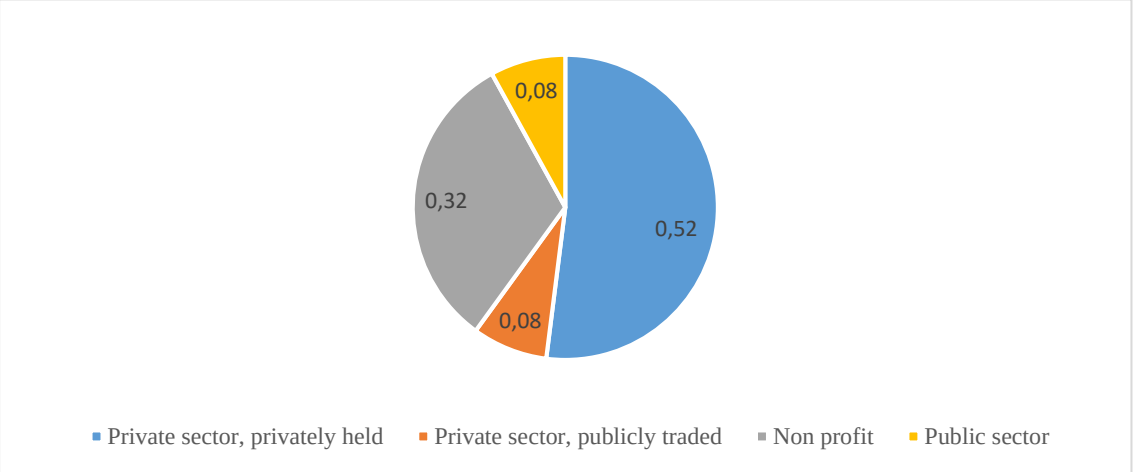
Figure 4.3 - Percentage of organizations from each country



4.4 Nature of the organization (*Sample size: 50 answers*)

There are 26 organizations in the private sector, that are privately held amongst 50 organizations (52%), 16 organizations in the non-profit sector amongst 50 organizations (32%) and 4 organizations both in the public sector and in the private sector, publicly traded, both amongst 50 organizations (4%). Figure 4.4 represents these results.

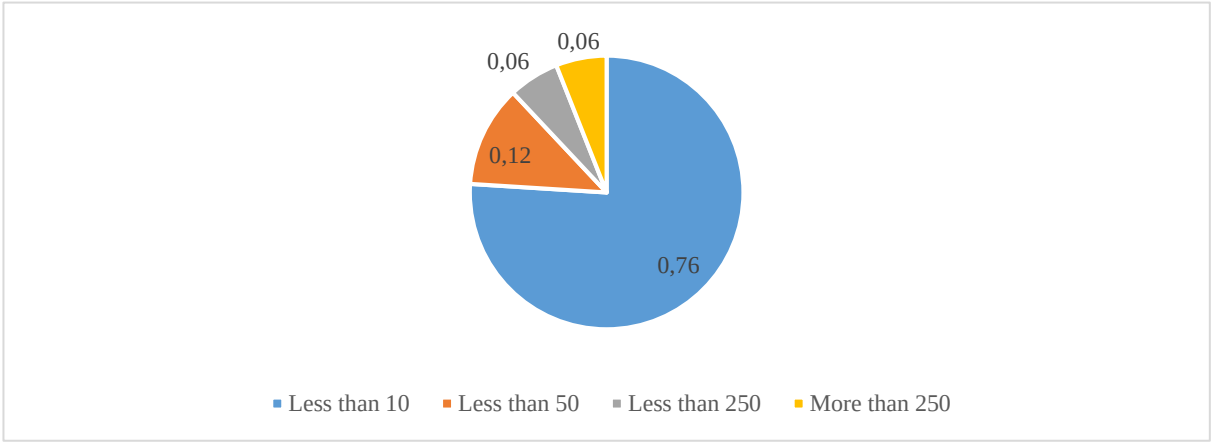
Figure 4.4 – Percentage of each type of organization



4.5 Number of people working full-time at the organization *(Sample size: 50 answers)*

38 amongst 50 organizations (76%) have less than 10 people working full time, 6 amongst 50 organizations (12%) have less than 50 people working full time, 3 amongst 50 organizations (6%) have less than 250 people working full time and 3 amongst 50 organizations (6%) have more than 250 people working full time. Figure 4.5 represents a graph of these results.

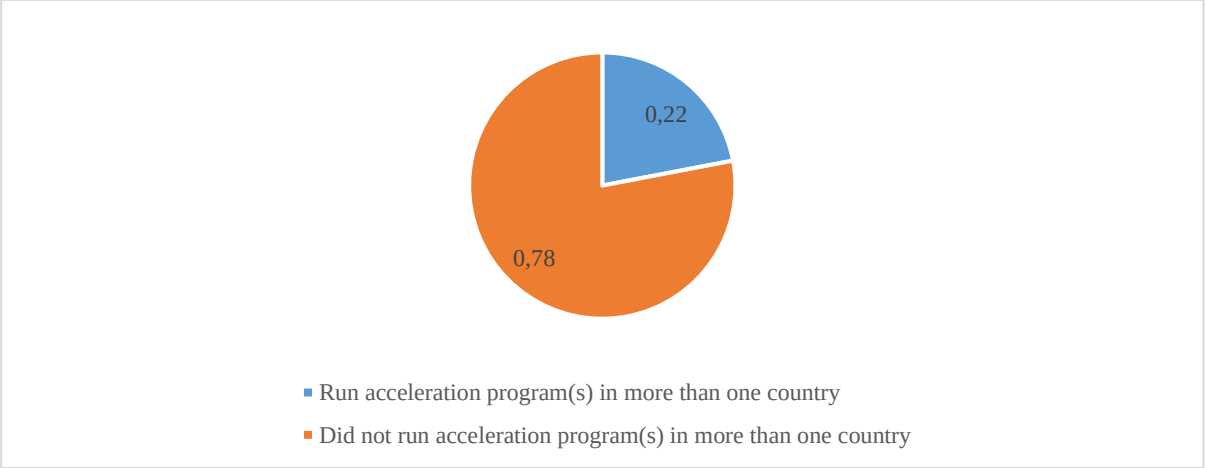
Figure 4.5 - Percentage of people working full time at the organization



4.6 Acceleration in more than one country *(Sample size: 50 answers)*

There are 39 amongst 50 organizations (78%) that do not run acceleration program(s) in more than one country and there are 11 amongst 50 organizations (22%) that run acceleration program(s) in more than one country. Figure 4.6 represents a graph of these results.

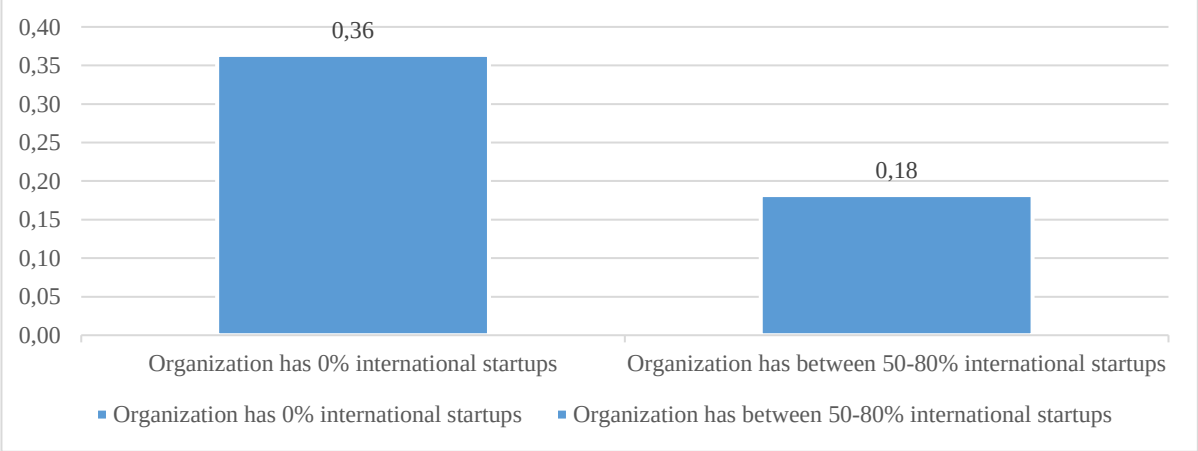
Figure 4.6 - Percentage of organizations that run or do not run acceleration program(s) in more than one country



4.7 International startups *(Sample size: 44 answers)*

16 amongst 44 organizations (36%) have 0% international startups and 8 amongst 44 organizations (18%) have between 50-80% international startups. Figure 4.7 represents a graph of these results.

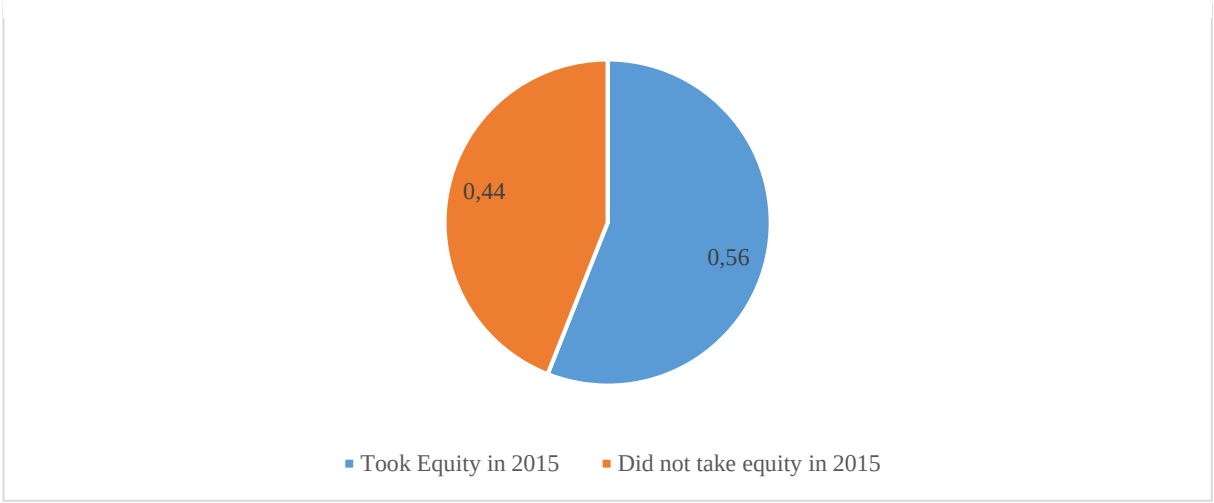
Figure 4.7 - Percentage of organizations with 0% and 50-80% international startups



4.8 Equity in 2015 (*Sample size: 50 answers*)

28 amongst 50 organizations (56%) took equity in 2015 and 22 amongst 50 organizations (44%) did not take equity in 2015. Figure 4.8 represents a graph of these results.

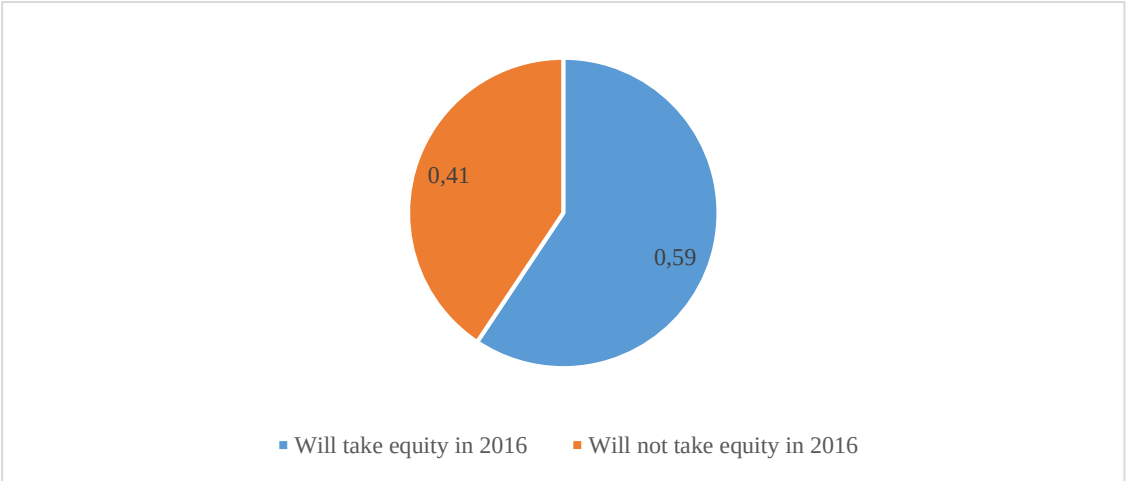
Figure 4.8- Percentage of organizations that took or did not take equity in 2015



4.9 Equity in 2016 *(Sample size: 32 answers)*

19 amongst 32 organizations (59%) will take equity in 2016 and 13 amongst 32 organizations (41%) will not take equity in 2016. Figure 4.9 represents a graph of these results.

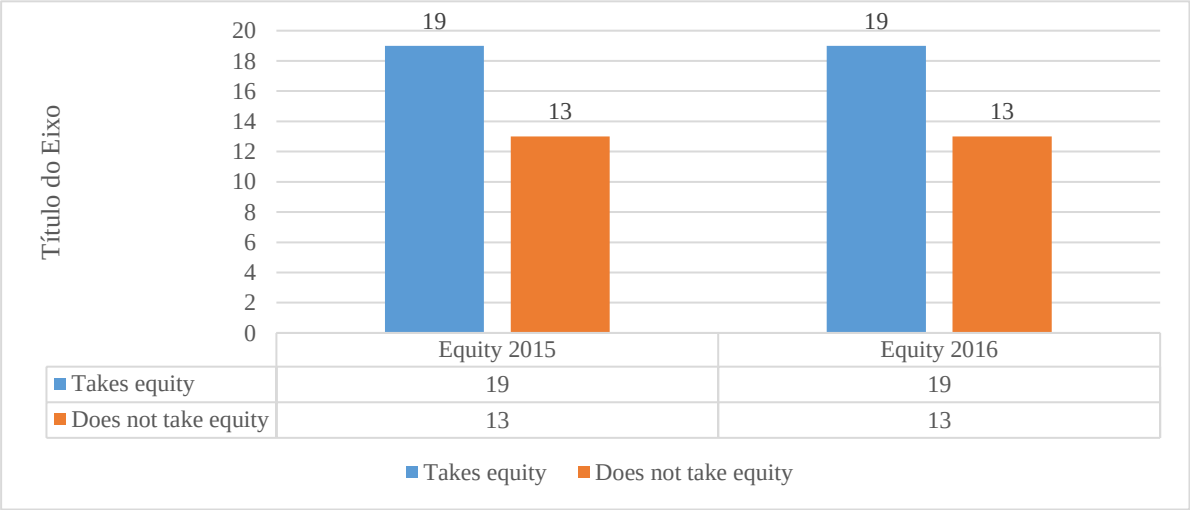
Figure 4.9 - Percentage of organizations that will or will not take equity in 2016



4.10 Equity in 2015 vs Equity in 2016 (*Sample size: 32 answers*)

The trends regarding equity are the same in 2015 and in 2016. Figure 4.10 represents the number of organizations that took or did not take equity in 2015 and in 2016. As it is possible to see, the trends regarding equity did not vary from one year to the other.

Figure 4.10 - Comparison of the trends of equity in 2015 and 2016



4.11 Equity amount in 2015 *(Sample size: 19 answers)*

On average, the organizations that took equity in 2015 asked for 8,08% of equity. Table 4.1 presents some statistics on the equity amount that was typically asked in 2015.

Table 4.1 - Equity amount in 2015

	Equity amount in 2015
Sample size	19
Average	8,08
Standard Deviation	4,22
Mode	6
Median	7
Maximum	20
Minimum	3

4.12 Equity amount in 2016 (*Sample size: 15 answers*)

On average, the organizations that will take equity in 2016 will ask for 8,1% of equity. Table 4.2 presents some statistics on the equity amount that was typically asked in 2016.

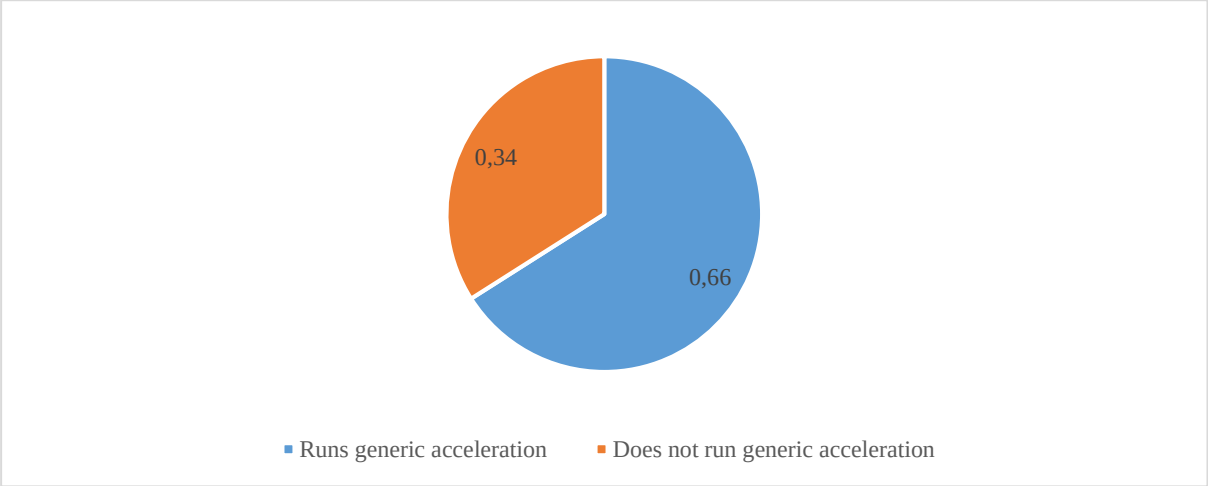
Table 4.2 - Equity amount in 2016

	Equity amount in 2016
Sample size	15
Average	8,1
Standard Deviation	3,73
Mode	6
Median	7,5
Maximum	15
Minimum	3

4.13 Generic acceleration (*Sample size: 50 answers*)

Most organizations run generic acceleration (66%), so 34% of organizations do not run generic acceleration. Figure 4.11 represents these results graphically.

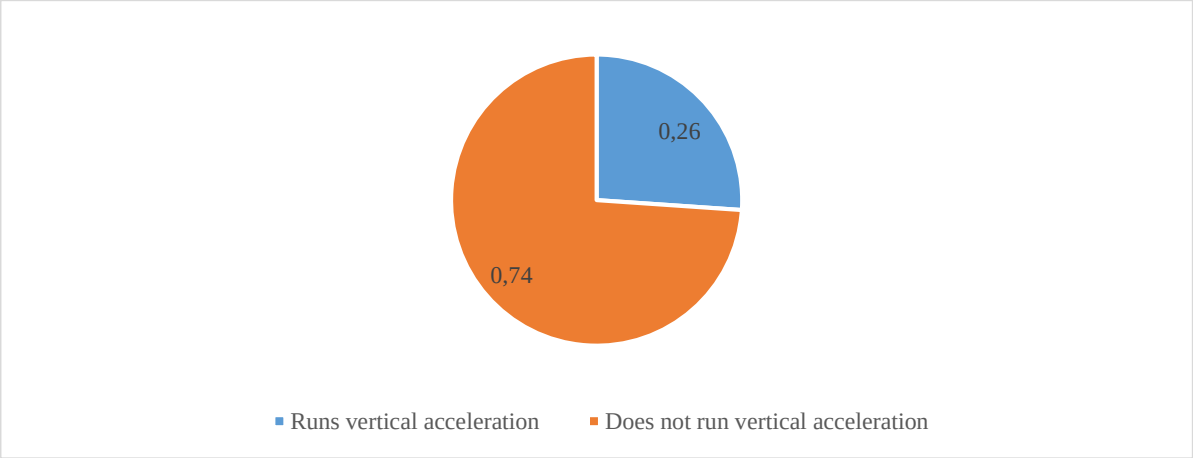
Figure 4.11 - Percentage of organizations that run or do not run generic acceleration



4.14 Vertical acceleration (*Sample size: 46 answers*)

Only 26% of organizations run vertical acceleration, so 74% of organizations do not run vertical acceleration. Figure 4.12 represents these results graphically.

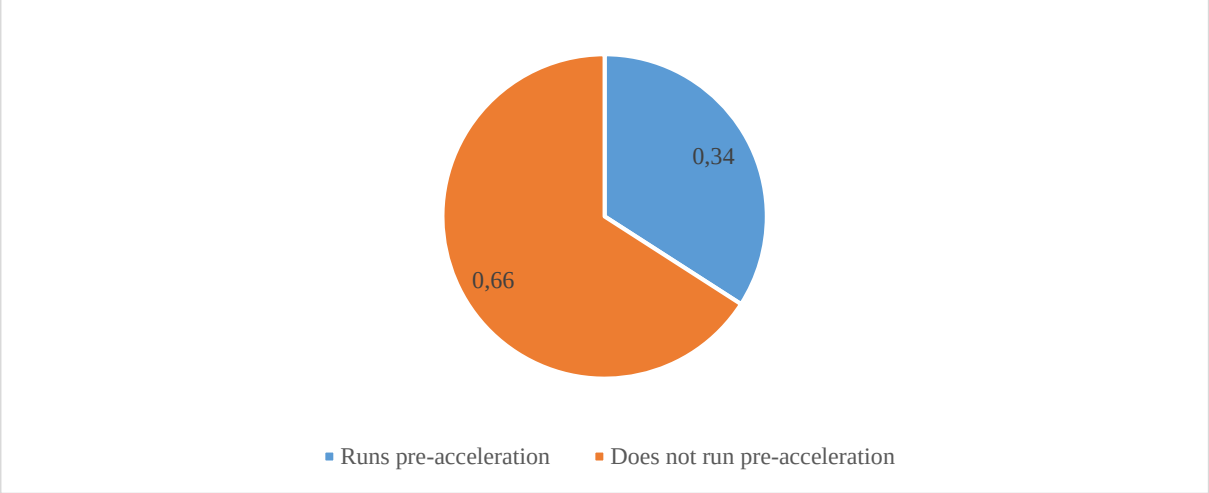
Figure 4.12 - Percentage of organizations that run or do not run vertical acceleration



4.15 Pre-acceleration (*Sample size: 44 answers*)

Only 34% of organizations run pre-acceleration, so 66% of organizations do not run pre-acceleration. Figure 4.13 represents these results.

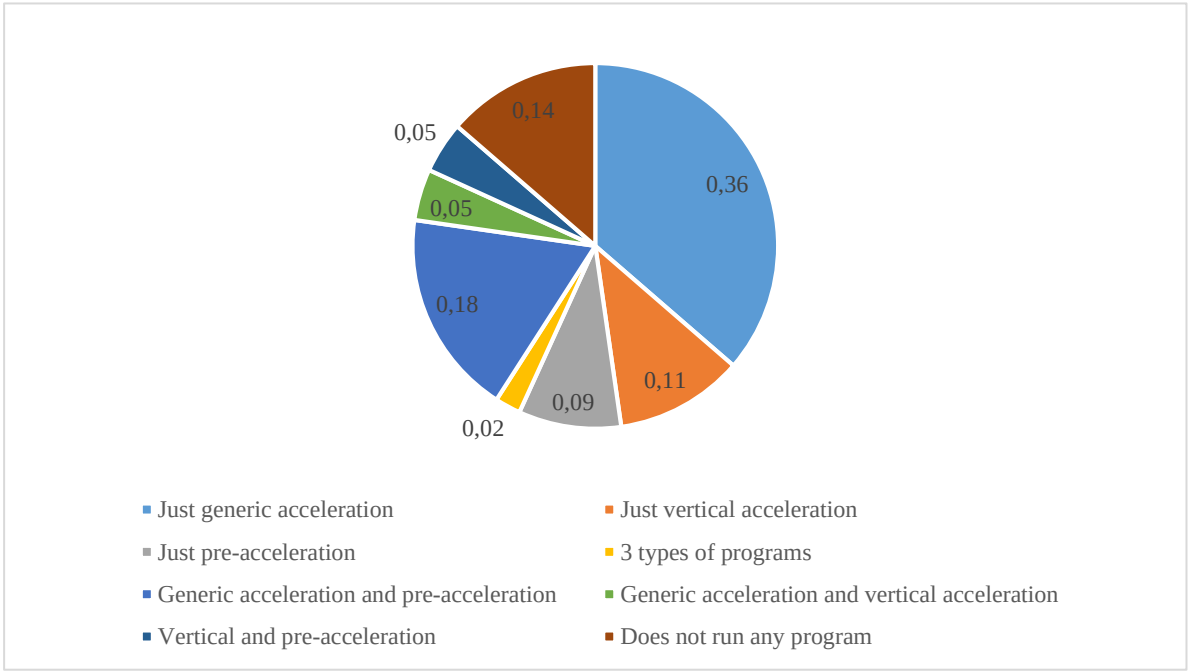
Figure 4.13 - Percentage of organizations that run or do not run pre-acceleration



4.16 Organizations that run each different combinations of programs (*Sample size: 44 answers*)

There are very few accelerators running pre-acceleration, generic acceleration and vertical acceleration at the same time (2%). Some accelerators run two different types of programs (for instance, vertical and pre-acceleration, generic and vertical acceleration, etc). The combination of generic and pre-acceleration is the most popular set amongst the organizations that run two types of programs (18% of organizations have it). There are some organizations that do not run any program (14% of organizations). Amongst the organizations that only run 1 type of program, generic acceleration is the most popular one (36%). Figure 4.14 represents these results.

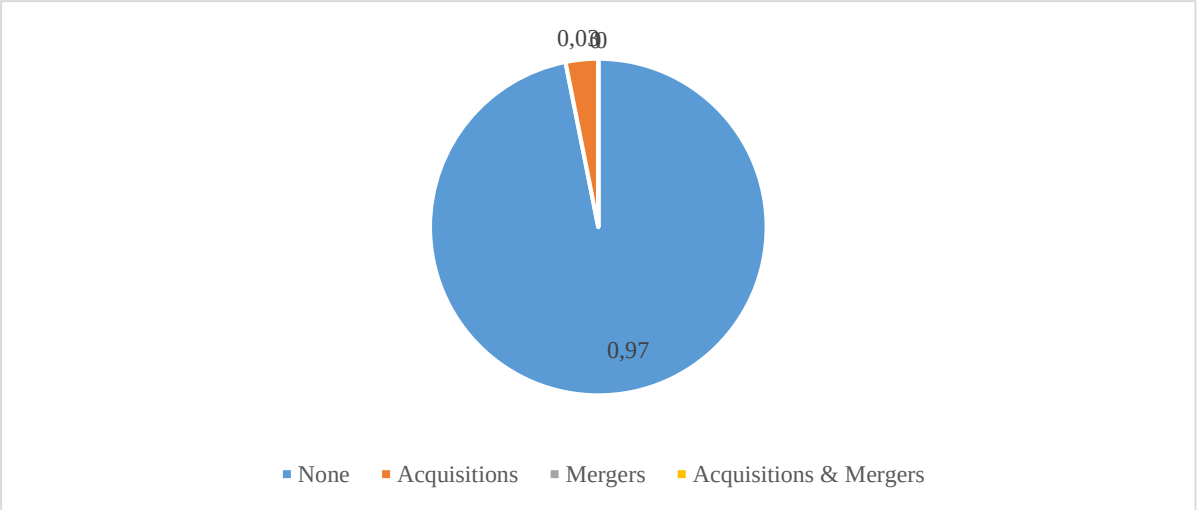
Figure 4.14 - Percentage of organizations with each combination of programs



4.17 Acquisitions & Mergers (*Sample size: 32 answers*)

31 amongst 32 organizations (97%) will not do any acquisition or merger in 2016. One organization considers doing an acquisition in 2016. Figure 4.15 represents these results.

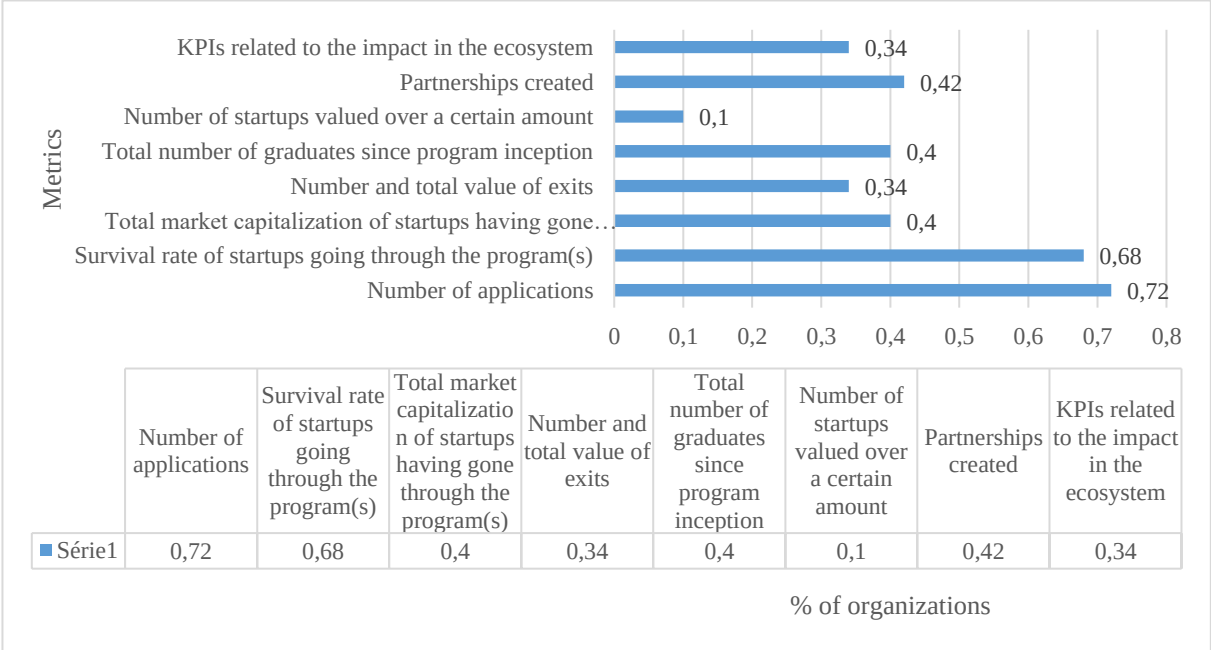
Figure 4.15 - Percentage of organizations that will do acquisitions/mergers in 2016



4.18 Metrics (*Sample size: 50 answers*)

The most common metrics to evaluate success amongst organizations are: number of applications (36 amongst 50 organizations use it, which means 72% of organizations), survival rate of startups going through the program(s) (34 amongst 50 organizations use it, which means 68% of organizations) and partnerships created (21 amongst 50 organizations use it, which means 42% of organizations). Figure 4.16 represents these results.

Figure 4.16 - Percentage of organizations that use each metric



4.19 Number of startups in 2015

In this section, there is an overview of the number of startups in the generic, vertical and pre-acceleration programs, and a combination of these in 2015.

4.19.1 Total number of startups in the generic programs in 2015 (Sample size: 25 answers)

Table 4.3 includes some statistics on the total number of startups in the generic programs in 2015. On average, there are approximately 27 startups in each generic program.

Table 4.3 - Total number of startups in the generic programs in 2015

	Total number of startups in the generic programs in 2015
Sample size	25
Average	27,36
Standard Deviation	43,67
Maximum	200
Minimum	4

4.19.2 Total number of startups in the vertical programs in 2015 (Sample size: 7 answers)

Table 4.4 includes some statistics on the total number of startups in the vertical programs in 2015. On average, there were approximately 13 startups in each vertical program.

Table 4.4 - Total number of startups in the vertical programs in 2015

	Total number of startups in the vertical programs in 2015
Sample size	7
Average	12,71
Standard Deviation	8,86
Maximum	30
Minimum	4

4.19.3 Total number of startups in the pre-acceleration programs in 2015 (Sample size: 3 answers)

Table 4.5 includes some statistics on the total number of startups in the pre-acceleration programs in 2015. On average, there were approximately 12 startups in each pre-acceleration program.

Table 4.5 - Total number of startups in the pre-acceleration programs in 2015

	Total number of startups in the pre-acceleration programs in 2015
Sample size	3
Average	12,33
Standard Deviation	8,02
Maximum	20
Minimum	4

4.19.4 Total amount of startups in the generic, vertical and pre-acceleration programs in 2015 (Sample size: 0 answers)

[It is not relevant to analyse this topic due to the lack of answers]

4.20 Number of startups in 2016

In this section, there is an overview of the number of startups in the generic, vertical and pre-acceleration programs, and a combination of these in 2016.

4.20.1 Total number of startups in the generic programs in 2016 (Sample size: 28 answers)

Table 4.6 includes some statistics on the total number of startups in the generic programs in 2016. On average, there are approximately 32 startups in each generic program.

Table 4.6 - Total number of startups in the generic programs in 2016

	Total number of startups in the generic programs in 2016
Sample size	28
Average	32,16
Standard Deviation	65,94
Maximum	300
Minimum	0

4.20.2 Total number of startups in the vertical programs in 2016 (Sample size: 24 answers)

Table 4.7 includes some statistics on the total number of startups in the vertical programs in 2016. On average, there are approximately 14 startups in each vertical program.

Table 4.7 - Total number of startups in the vertical programs in 2016

	Total number of startups in the vertical programs in 2016
Sample size	24
Average	14,06
Standard Deviation	30,66
Maximum	150
Minimum	0

4.20.3 Total number of startups in the pre-acceleration programs in 2016 (Sample size: 25 answers)

Table 4.8 includes some statistics on the total number of startups in the pre-acceleration programs in 2016. On average, there are approximately 15 startups in each pre-acceleration program.

Table 4.8 - Total number of startups in the pre-acceleration programs in 2016

	Total number of startups in the pre-acceleration programs in 2016
Sample size	25
Average	14,86
Standard Deviation	40,80
Maximum	200
Minimum	0

4.20.4 Total number of startups in the generic, vertical and pre-acceleration programs in 2016 (Sample size: 20 answers)

Table 4.9 includes some statistics on the total number of startups in the generic, vertical and pre-acceleration programs in 2016. On average, there are approximately 43 startups in these programs.

Table 4.9 - Total number of startups in the generic, vertical and pre-acceleration programs in 2016

	Total no. of startups in the generic, vertical and pre-acceleration programs in 2016
Sample size	20
Average	43,35
Standard Deviation	97,57
Maximum	450
Minimum	0

4.21 Variation in the number of startups in the programs between 2015 and 2016

This section includes an overview of the variation (Δ) in the number of startups in the generic, vertical. pre-acceleration programs and combination of these between 2015 and 2016.

4.21.1 Variation between the number of startups in the generic programs between 2015 and 2016 (Sample size: 18 answers)

On average, there were more 12,64 startups in generic programs in 2016 than in generic programs in 2015. The biggest increase in the number of startups in generic programs from 2015 to 2016 was having more 175 startups in the generic program. The biggest decrease in the number of startups in generic programs from 2015 to 2016 was having less 30 startups in the generic program. Table 4.10 presents these results.

Table 4.10 - Variation between the number of startups in the generic programs between 2015 and 2016

	Δ between the number of startups in the generic programs between 2015 and 2016
Average	12,64
Standard Deviation	46,45
Maximum	175,00
Minimum	-30

4.21.2 Variation between the number of startups in the vertical programs between 2015 and 2016

On average, there were more 27,40 startups in vertical programs in 2016 than in vertical programs in 2015. The biggest increase in the number of startups in vertical programs from 2015 to 2016 was having more 120 startups in the vertical program. The biggest decrease in the number of startups in vertical programs from 2015 to 2016 was having less 1 startup in the vertical program. Table 4.11 presents these results.

Table 4.11 - Variation between the number of startups in the vertical programs between 2015 and 2016

	Δ between the number of startups in the vertical programs between 2015 and 2016
Average	27,40
Standard Deviation	51,99
Maximum	120,00
Minimum	-1

4.21.3 Variation between the number of startups in the pre-acceleration programs between 2015 and 2016 (Sample size: 3 answers)

On average, there were more 13,67 startups in pre-acceleration programs in 2016 than in pre-acceleration programs in 2015. The biggest increase in the number of startups in pre-acceleration programs from 2015 to 2016 was having more 40 startups in the pre-acceleration program. The biggest decrease in the number of startups in pre-acceleration programs from 2015 to 2016 was having less 3 startups in the pre-acceleration program. Table 4.12 presents these results.

Table 4.12 - Variation between the number of startups in the pre-acceleration programs between 2015 and 2016

	Δ between the number of startups in the pre-acceleration programs between 2015 and 2016
Average	13,67
Standard Deviation	23,07
Maximum	40,00
Minimum	-3

4.22 Strategic reasons to run generic acceleration *(Sample size: 18 answers)*

The respondents had some strategic reasons to run generic acceleration that they should classify, according to the importance they thought each one had regarding the organization's decision to run that type of program. Table 4.13 includes the various strategic reasons that were included in the survey and each one of those is therefore analysed in this section.

Table 4.13 - Strategic reasons to run generic acceleration

Strategic reasons to run generic acceleration
Acceleration is our core
Identify good investment opportunities for our portfolio
Identify good investment opportunities for our clients
Help transfer technology into business
Support growth of the ecosystem
Promote internal cultural change

- **'Acceleration is our core'**

On average, organizations considered that 'Acceleration is our core' was an important/very important reason to run generic acceleration. The most common classification was 5, which means that the most common classification was extremely important. Table 4.14 presents the main results that were reached.

Table 4.14 - Descriptive statistics on the strategic reason 'Acceleration is our core'

	Acceleration is our core
Average	3,72
Standard deviation	1,36
Mode	5
Median	3,5
Maximum	5
Minimum	1
Kurtosis	-0,39

- **'Identify good investment opportunities for our portfolio'**

On average, organizations considered that 'Identify good investment opportunities for our portfolio' was an important reason to run generic acceleration. The most common classification was 3, which means that the most common classification was important. Table 4.15 presents the main results that were reached.

Table 4.15 - Descriptive statistics on the strategic reason 'Identify good investment opportunities for our portfolio'

	Identify good investment opportunities for our portfolio
Average	3,22
Standard deviation	1,40
Mode	3
Median	3
Maximum	5
Minimum	1
Kurtosis	-0,98

- **'Identify good investment opportunities for our clients'**

On average, organizations considered that 'Identify good investment opportunities for our clients' was a somehow important/important reason to run generic acceleration. The most common classification was 1, which means that the most common classification was not important. Table 4.16 presents the main results that were reached.

Table 4.16 - Descriptive statistics on the strategic reason 'Identify good investment opportunities for our clients'

	Identify good investment opportunities for our clients
Average	2,72
Standard deviation	1,45
Mode	1
Median	2,5
Maximum	5
Minimum	1
Kurtosis	-1,47

- **'Help transfer technology into business'**

On average, organizations considered that 'Help transfer technology into business' was an important reason to run generic acceleration. The most common classification was 3, which means that the most common classification was important. Table 4.17 presents the main results that were reached.

Table 4.17 - Descriptive statistics on the strategic reason 'Help transfer technology into business'

	Help transfer technology into business
Average	3,17
Standard deviation	1,25
Mode	3
Median	3
Maximum	5
Minimum	1
Kurtosis	-0,66

- **'Support growth of the ecosystem'**

On average, organizations considered that 'Support growth of the ecosystem' was an important/very important reason to run generic acceleration. The most common classification was 5, which means that the most common classification was extremely important. Table 4.18 presents the main results that were reached.

Table 4.18 - Descriptive statistics on the strategic reason 'Support growth of the ecosystem'

	Support growth of the ecosystem
Average	3,94
Standard deviation	1,16
Mode	5
Median	4
Maximum	5
Minimum	1
Kurtosis	1,01

- **'Promote internal cultural change'**

On average, organizations considered that 'Promote internal cultural change' was a somehow important/important reason to run generic acceleration. The most common classification was 3, which means that the most common classification was important. Table 4.19 presents the main conclusions that were reached.

Table 4.19 - Descriptive statistics on the strategic reason 'Promote internal cultural change'

	Promote internal cultural change
Average	2,78
Standard deviation	1,44
Mode	3
Median	3
Maximum	5
Minimum	1
Kurtosis	-1,09

4.23 Value for the entrepreneur who is part of the generic programs *(Sample size: 22 answers)*

The respondents had to classify some options regarding the value that entrepreneurs had when joining generic acceleration programs, according to the value they thought each one. Table 4.20 includes the various options that were included in the survey and each one of those is therefore analysed in this section.

Table 4.20 - Value for the entrepreneur who is part of the generic program

Value for the entrepreneur who is part of the generic program
Learn new tools and methodologies to help structure and develop their business ideas
Learn tools and strategies to help scale-up their business
Discuss their business challenges with experienced mentors
Network extensively
Increase chances to raise money/access funds
Having access to a working space
Prepared to face difficulties or barriers along the way
Benefit from accountability (encouraged to report progress to mentors/staff)

- **'Learn new tools and methodologies to help structure and develop their business ideas'**

On average, organizations considered that 'Learn new tools and methodologies to help structure and develop their business ideas' was very valuable for the entrepreneur who is part of the generic programs. The most common classification was 4, which means that the most common classification was very valuable. Table 4.21 presents the main conclusions that were reached.

Table 4.21 - Descriptive statistics on 'Learn new tools and methodologies to help structure and develop their business ideas'

	Learn new tools and methodologies to help structure and develop their business ideas
Average	4,05
Standard deviation	0,84
Mode	4
Median	4
Maximum	5
Minimum	2
Kurtosis	0,03

- **'Learn tools and strategies to help scale-up their business'**

On average, organizations considered that 'Learn tools and strategies to help scale-up their business' was very valuable for the entrepreneur who is part of the generic programs. The most common classification was 4, which means that the most common classification was very valuable. Table 4.22 presents the main conclusions that were reached.

Table 4.22 - Descriptive statistics on 'Learn tools and strategies to help scale-up their business'

	Learn tools and strategies to help scale-up their business
Average	4,14
Standard deviation	0,71
Mode	4
Median	4
Maximum	5
Minimum	3
Kurtosis	-0,85

- **'Discuss their business challenges with experienced mentors'**

On average, organizations considered that 'Discuss their business challenges with experienced mentors' was very valuable for the entrepreneur who is part of the generic programs. The most common classification was 5, which means that the most common classification was extremely valuable. Table 4.23 presents the main conclusions that were reached.

Table 4.23 - Descriptive statistic on 'Discuss their business challenges with experienced mentors'

	Discuss their business challenges with experienced mentors
Average	4,23
Standard deviation	0,75
Mode	5
Median	4
Maximum	5
Minimum	3
Kurtosis	-1,04

- **'Network extensively'**

On average, organizations considered that 'Network extensively' was very valuable for the entrepreneur who is part of the generic programs. The most common classification was 5, which means that the most common classification was extremely valuable. Table 4.24 presents the main conclusions that were reached.

Table 4.24 - Descriptive statistics on 'Network extensively'

	Network extensively
Average	4,05
Standard deviation	0,84
Mode	5
Median	4
Maximum	5
Minimum	3
Kurtosis	-1,61

- **'Increase chances to raise money/access funds'**

On average, organizations considered that 'Increase chances to raise money/access funds' was valuable/very valuable for the entrepreneur who is part of the generic programs. The most common classification was 4, which means that the most common classification was very valuable. Table 4.25 presents the main conclusions that were reached.

Table 4.25 - Descriptive statistics on 'Increase chances to raise money/access funds'

	Increase chances to raise money/access funds
Average	3,95
Standard deviation	0,95
Mode	4
Median	4
Maximum	5
Minimum	2
Kurtosis	-0,30

- **'Having access to a working space'**

On average, organizations considered that 'Having access to a working space' was valuable/very valuable for the entrepreneur who is part of the generic programs. The most common classification was 4, which means that the most common classification was very valuable. Table 4.26 presents the main conclusions that were reached.

Table 4.26 - Descriptive statistics on 'Having access to a working space'

	Having access to a working space
Average	3,50
Standard deviation	1,26
Mode	4
Median	4
Maximum	5
Minimum	1
Kurtosis	0,09

- **'Prepared to face difficulties or barriers along the way'**

On average, organizations considered that 'Prepared to face difficulties or barriers along the way' was valuable/very valuable for the entrepreneur who is part of the generic programs. The most common classification was 3, which means that the most common classification was valuable. Table 4.27 presents the main conclusions that were reached

Table 4.27 - Descriptive statistics on 'Prepared to face difficulties or barriers along the way'

	Prepared to face difficulties or barriers along the way
Average	3,68
Standard deviation	0,95
Mode	3
Median	4
Maximum	5
Minimum	2
Kurtosis	-0,87

- **'Benefit from accountability (encouraged to report progress to mentors/staff)'**

On average, organizations considered that 'Benefit from accountability (encouraged to report progress to mentors/staff)' was valuable/very valuable for the entrepreneur who is part of the generic programs. The most common classification was 4, which means that the most common classification was very valuable. Table 4.28 presents the main conclusions that were reached.

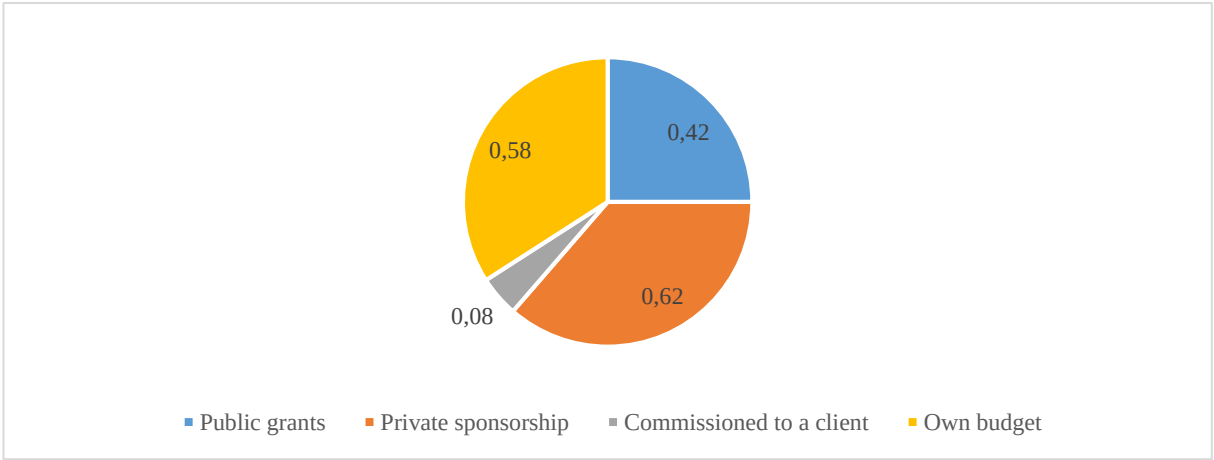
Table 4.28 - Descriptive statistics on 'Benefit from accountability (encouraged to report progress to mentors/staff)'

	Benefit from accountability (encouraged to report progress to mentors/staff)
Average	3,86
Standard deviation	1,04
Mode	4
Median	4
Maximum	5
Minimum	2
Kurtosis	-0,74

4.24 Funding of the generic programs (*Sample size: 26 answers*)

11 amongst 26 organizations (42%) use public grants to fund the generic programs, 16 amongst 26 organizations (62%) use private sponsorship to fund the generic programs, 2 amongst 26 organizations (8%) use commissioned to a client to fund the generic programs, 15 amongst 26 organizations (58%) use their own budget to fund the generic programs. Figure 4.17 represents these results.

Figure 4.17 - Percentage of organizations that use each of the following ways to fund the generic programs



No organization relies on 'Commissioned to a client' solely. 7 organizations amongst 26 only rely on their own budget (27% of organizations). 3 organizations amongst 26 only rely on private sponsorship (12% of organizations). 2 organizations amongst 26 only rely on public grants (8% of organizations). Most organizations use a mix of different ways of funding, for instance, public grants plus private sponsorship or private sponsorship plus their own budget.

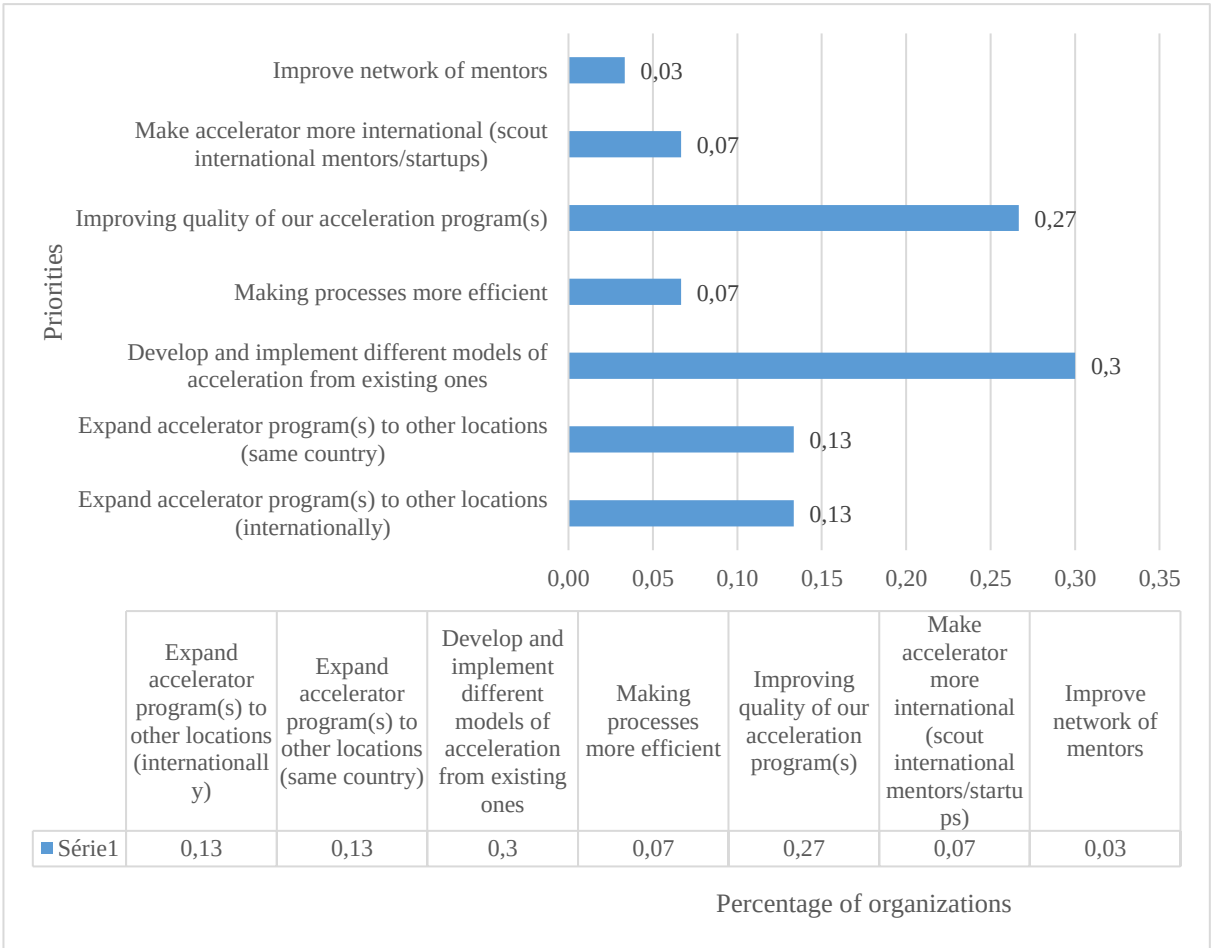
4.25 Priorities for 2016 (*Sample size: 30 answers*)

The respondents had a set of different priorities for 2016 that they had to rank. For this research work, only the top 3 priorities were taken into consideration and analysed.

- **First priority**

9 amongst 30 organizations (30%) have 'Develop and implement different models of acceleration from existing ones' as their first priority. 8 amongst 30 organizations (27%) have 'Improving quality of our acceleration program(s) as their first priority'. Figure 4.18 represents these results.

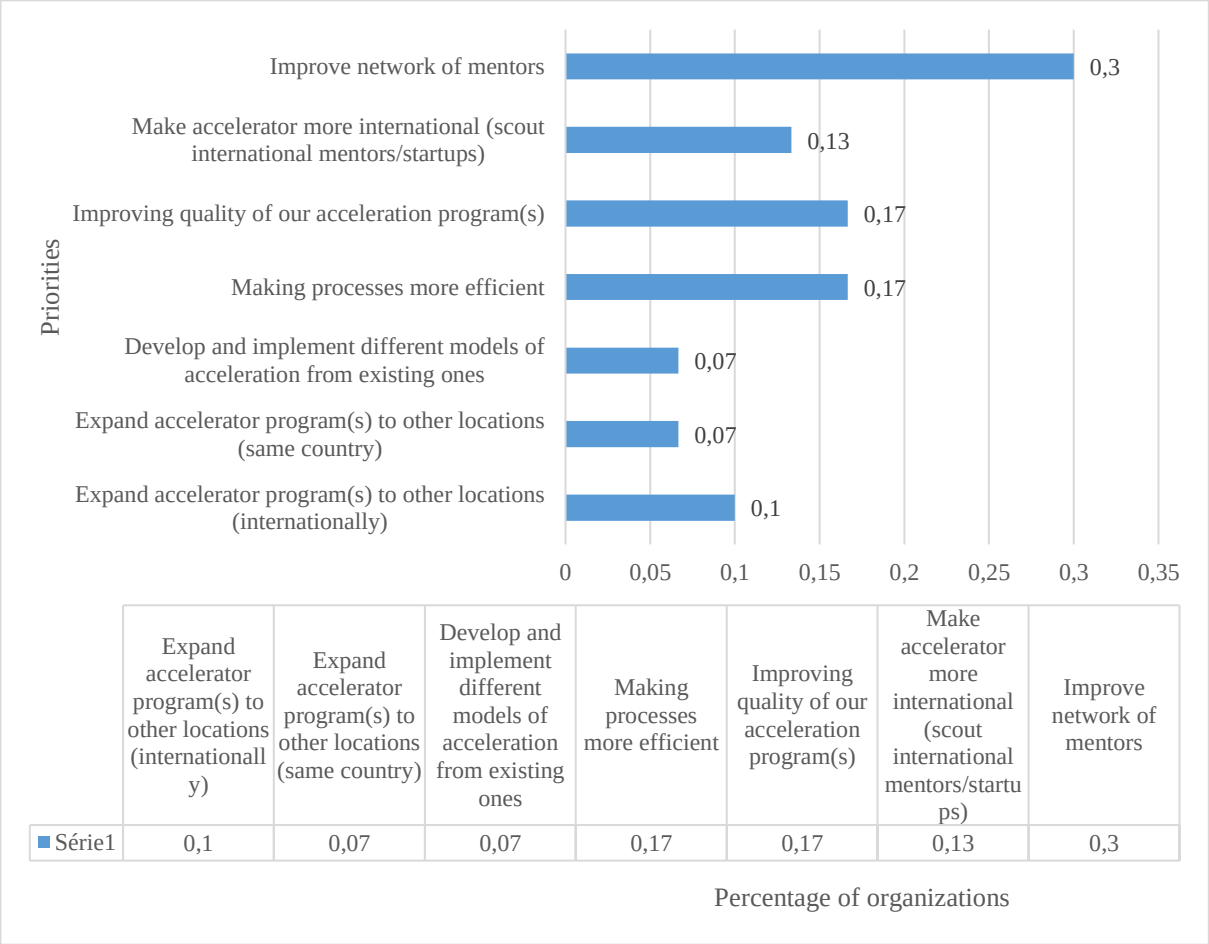
Figure 4.18 - Percentage of organizations that have selected each option as their first priority for 2016



- **Second priority**

9 amongst 30 organizations (30%) identified their second priority as ‘Improve network of mentors’, 5 amongst 30 organizations (17%) identified their second priority as ‘Improving quality of our acceleration program(s)’ and ‘Making processes more efficient’. Figure 4.19 represents these results.

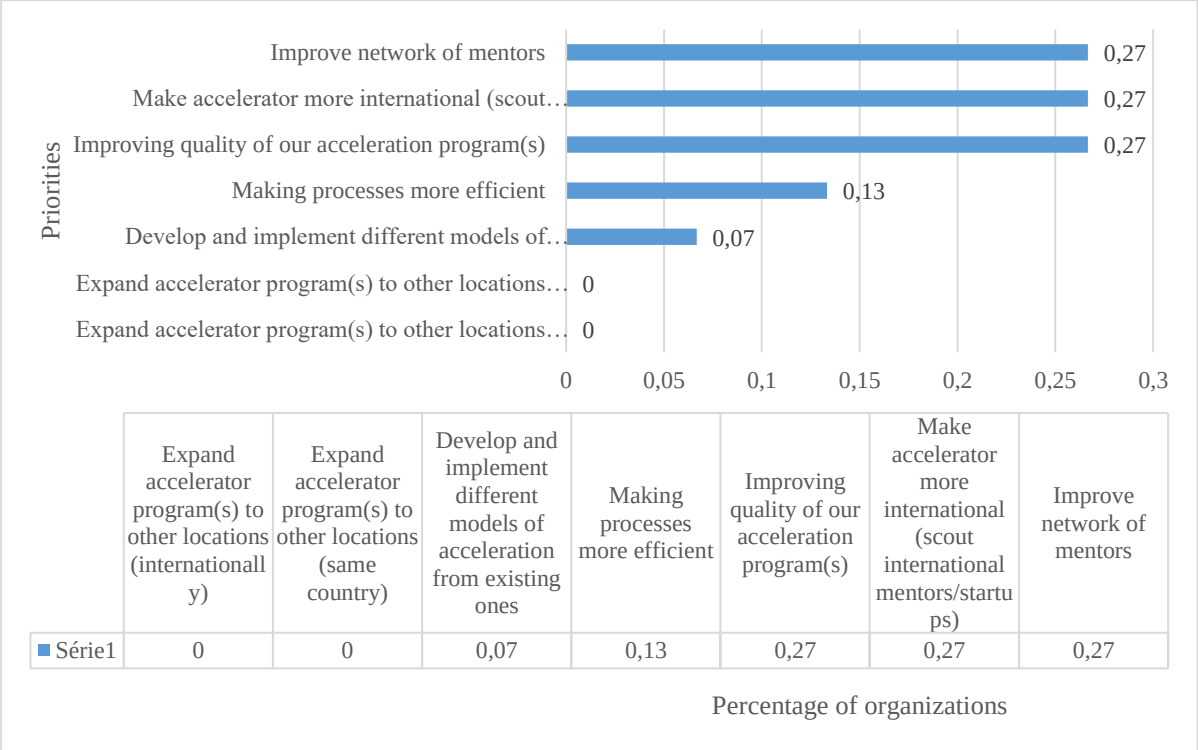
Figure 4.19 - Percentage of organizations that have selected each option as their second priority for 2016



- **Third priority**

8 amongst 30 organizations (27%) identified ‘Improve network of mentors, ‘Make accelerator more international (scout international mentors/startups)’ and ‘Improving quality acceleration program(s)’ as their third priority for 2016. Figure 4.20 represents these results.

Figure 4.20 - Percentage of organizations that selected each option as their third priority for 2016



4.26 Challenges for the future *(Sample size: 23 answers)*

The respondents had a list of challenges for the future that they had to classify, according to the importance they thought each one had in the context of their organization. Table 4.29 includes the various options that were included in the survey and each one of those is therefore analysed in this section.

Table 4.29 - Challenges for the future

Challenges for the future
Measure value delivered
Build credibility
Create global network to help startups go global
Attract quality startups
Attract quality mentors
Attract funding for startups
Optimize internal processes
Increase competition in acceleration industry
Financial sustainability of acceleration business model

- **'Measure value delivered'**

On average, the challenge 'Measure value delivered' received a classification of 3,96, which means that on average, it is an important/very important challenge. The most common classification that this challenge received was 3, which means that the most common classification for this challenge was 'Important'. Table 4.30 presents the main conclusions.

Table 4.30 - Descriptive statistics on the challenge 'Measure value delivered'

	Measure value delivered
Average	3,96
Standard Deviation	0,88
Mode	3
Median	4
Maximum	5
Minimum	3
Kurtosis	-1,75

- **'Build credibility'**

On average, the challenge 'Build credibility' received a classification of 4,26, which means that on average, it is a very important challenge. The most common classification that this challenge received was 5, which means that the most common classification for this challenge was 'Extremely Important'. Table 4.31 presents the main conclusions.

Table 4.31 - Descriptive statistics on the challenge 'Build credibility'

	Build credibility
Average	4,26
Standard Deviation	0,86
Mode	5
Median	5
Maximum	5
Minimum	3
Kurtosis	-1,45

- **'Create global network to help startups go global'**

On average, the challenge 'Create global network to help startups go global' received a classification of 3,43, which means that on average, it is an important challenge. The most common classification that this challenge received was 3, which means that the most common classification for this challenge was 'Important'. Table 4.32 presents the main conclusions

Table 4.32 - Descriptive statistics on the challenge 'Create global network to help startups go global'

	Create global network to help startups go global
Average	3,43
Standard Deviation	1,08
Mode	3
Median	3
Maximum	5
Minimum	1
Kurtosis	-0,26

- **'Attract quality startups'**

On average, the challenge 'Attract quality startups' received a classification of 4,65, which means that on average, it is a very important/extremely important challenge. The most common classification that this challenge received was 5, which means that the most common classification for this challenge was 'Extremely Important'. Table 4.33 presents the main conclusions.

Table 4.33 - Descriptive statistics on the challenge 'Attract quality startups'

	Attract quality startups
Average	4,65
Standard Deviation	0,65
Mode	5
Median	5
Maximum	5
Minimum	3
Kurtosis	1,95

- **'Attract quality mentors'**

On average, the challenge 'Attract quality mentors' received a classification of 4,48, which means that on average, it is a very important challenge. The most common classification that this challenge received was 5, which means that the most common classification for this challenge was 'Extremely Important'. Table 4.34 presents the main conclusions.

Table 4.34 - Descriptive statistics on the challenge 'Attract quality mentors'

	Attract quality mentors
Average	4,48
Standard Deviation	0,67
Mode	5
Median	5
Maximum	5
Minimum	3
Kurtosis	-0,12

- **'Attract funding for startups'**

On average, the challenge 'Attract funding for startups' received a classification of 4,09, which means that on average, it is a very important challenge. The most common classification that this challenge received was 4, which means that the most common classification for this challenge was 'Very Important'. Table 4.35 presents the main conclusions.

Table 4.35 - Descriptive statistics on the challenge 'Attract funding for startups'

	Attract funding for startups
Average	4,09
Standard Deviation	0,95
Mode	4
Median	4
Maximum	5
Minimum	2
Kurtosis	0,10

- **'Optimize internal processes'**

On average, the challenge 'Optimize internal processes' received a classification of 3,43, which means that on average, it is an important challenge. The most common classification that this challenge received was 3, which means that the most common classification for this challenge was 'Important'. Table 4.36 presents the main conclusions.

Table 4.36 - Descriptive statistics on the challenge 'Optimize internal processes'

	Optimize internal processes
Average	3,43
Standard Deviation	0,84
Mode	3
Median	3
Maximum	5
Minimum	2
Kurtosis	-0,21

- **'Increase competition in acceleration industry'**

On average, the challenge 'Increase competition in acceleration industry' received a classification of 2,65, which means that on average, it is a somehow important/important challenge. The most common classification that this challenge received was 3, which means that the most common classification for this challenge was 'Important'. Table 4.37 presents the main conclusions.

Table 4.37 – Descriptive statistics on the challenge 'Increase competition in acceleration industry'

	Increase competition in acceleration industry
Average	2,65
Standard Deviation	1,03
Mode	3
Median	3
Maximum	5
Minimum	1
Kurtosis	-0,02

- **'Financial sustainability of acceleration business model'**

On average, the challenge 'Financial sustainability of acceleration business model' received a classification of 4,00, which means that on average, it is a very important challenge. The most common classification that this challenge received was 5, which means that the most common classification for this challenge was 'Extremely Important'. Table 4.38 presents the main conclusions.

Table 4.38 - Descriptive statistics on the challenge 'Financial sustainability of acceleration business model'

	Financial sustainability of acceleration business model
Average	4,00
Standard Deviation	1,09
Mode	5
Median	4
Maximum	5
Minimum	1
Kurtosis	0,73

Chapter 5

Results: Statistical Inference

This chapter explains the steps that were taken while running statistical inference on the data. Firstly, it presents the most interesting correlations that were found between two different variables. Then, there is a statistical analysis with regards to Principal Components Analysis of different elements that were part of the survey. Statistical inference should help obtaining remarks that are beyond mere chance, instead they are valid, with due uncertainty, for the population (of accelerators, in the current analysis) as a whole.

5.1 Statistical procedure

The survey that was carried out was restructured at times, based on certain assumptions that were taken into consideration, as it is possible to see in Appendix III. This Appendix includes the assumptions that were made with regards to the introductory questions, the generic, vertical and pre-acceleration questions and the questions related to the future of acceleration. This procedure was done so that we would be able to collect as many answers per category as possible, in order to have the largest sample possible and to be able to analyze different sets of questions. Therefore, we tried to have access to the maximum number of variables for the same accelerator. Some generalist assumptions were taken into consideration:

- Due to the lack of substantial information, the option “Other: please specify” was not taken into consideration;
- Answers that included N/A (Not Applicable) were not taken into consideration.

The first goal was to measure the association between variables, and we tried to use the highest number of variables possible so that we would be able to compare more results for the accelerators. We have also calculated the associations with a largest data set, and each of the samples used had fewer variables available but more observations (comprising 13, 21 and 46 observations). The results for these larger

samples confirmed the ones obtained for the 12 observations and broader dataset. Thereby, our analysis gains more reliability and the conclusions drawn on the various aspects.

The correlation between different variables was calculated for 1%, 5% and 10% levels of significance, in order to identify the most interesting situations. The Kendall nonparametric correlation coefficient, usually referred to as Kendall's tau coefficient was used. This statistic can measure the association between categorical and interval or continuous variables. A tau test is a non-parametric hypothesis test for statistical dependence based on the tau coefficient. More specifically, the Tau-b statistic was the one chosen for the current data, which unlike Tau-a makes adjustments for ties. The values of Tau-b vary from −1 (100% negative association, or perfect inversion) to +1 (100% positive association, or perfect agreement). A value of zero represents the absence of association.

The Kendall Tau-b test was the most suitable option in this case because this a non-parametric test, thereby robust to deviations from normality, and we are dealing mostly with categorical variables. If there is no correlation between two variables, this is also a result, because it means that there is not any kind of connection between them.

After identifying the most relevant correlations, contingency tables were developed in order to verify and assure the significance of the correlations. If two variables were not considered to be statistically correlated in the first part of the analysis, the contingency table was still developed based on the absolute frequency of the data.

The Fischer's exact test and, when applicable, the McNemar's test were used while inspecting the contingency tables. The Fisher's exact test is a statistical significance test used in the analysis of contingency tables. In practice, it is generally used for small sample sizes, but it is valid for all sample sizes. The McNemar's test is a statistical test used on paired nominal data. These two tests confirmed broadly the previously found correlations, when using Kendall Tau-b coefficient.

The Chi-Square test was not the most suitable one because it is only applicable to large sample sizes. In this case, the sample size is small, because the survey had questions that had a large amount of answers and questions that very few people had answered.

We explored the different views of the accelerators looking at the main variables related to the strategic reasons, value for the entrepreneur and challenges for the future, using Categorical (or also called Nonlinear) Principal Components while applying the Optimal Scaling procedure, as implemented in *SPSS Software*.

Principal component analysis (PCA) takes into account the maximum of information possible and compacts into fewer dimensions that broadly summarize the essentials of the content associated with

the variables that we are analysing. PCA is, also for categorical variables, a statistical procedure to summarize a set of variables into a smaller set of components, which are in most cases orthogonal among them. The number of principal components is less than or equal to the number of original variables.

Using the dimensions obtained from PCA for each set of variables, we further analysed the grouping that emerges and characterized the patterns suggested, in particular as exhibited in the figures named *Objects Points Labelled by Casenumber*.

5.2 Correlations using the Kendall Tau-b coefficient

The various correlations between the variables were calculated. Appendix IV contains all the significant correlations that were found, using the Kendall Tau-b correlation coefficient, for levels of significance of 1% (the value is associated with **), 5% (the value is associated with *) and 10%.

Some correlations were considered to be particularly relevant, and are presented below:

- The region where the accelerator comes from (USA or other part of world) is:
    - positively correlated with the number of people working full time at the organization, considering the organizations that have more or less than 10 people working full time. This means that the accelerators that are not from the USA usually have less than 10 people working full time at their organizations and the accelerators from the USA tend to have more than 10 people working full time;
    - negatively correlated with the accelerator asking or not for equity, which means that the accelerators that are not from the USA usually do not ask for equity, while the accelerators from the USA tend to ask for equity;
    - positively correlated with the accelerator using more or less than 2 metrics, which means that the organizations that are not from the USA generally use less than 2 metrics to evaluate success and the organizations from the USA tend to use more than 2 metrics;
    - positively correlated with the accelerator using more or less than 3 metrics, which means that the accelerators that are not from the USA generally use less than 3 metrics and the accelerators from the USA use more than 3 metrics;
    - negatively correlated with the challenges for the future, considering the categories of ‘Challenges related to the value created’, ‘External challenges’ and ‘Internal challenges’, which means that accelerators that are not from the USA are more concerned about internal challenges, while accelerators that are from the USA are more concerned with challenges related to the value created.

- The number of people working full time considering the organizations that have more or less than 10 people working full time is:
    - negatively correlated with the challenges for the future, divided into two categories: 'Accelerator itself' and 'Accelerator and elements of the ecosystem', which means that accelerators with less than 10 people are more worried about challenges related to the accelerator and elements of the ecosystem, while accelerators that have more than 10 people are more concerned about the challenges related to the accelerator itself;
    - negatively correlated with the accelerator running or not acceleration programs in more than one country, which means that accelerators that have less than 10 people usually do not run acceleration programs in more than one country, and accelerators that have more than 10 people tend to run those programs;
    - positively correlated with the number of startups that are part of the generic programs in 2016, which means that accelerators with more than 10 people tend to have more startups taking part in the generic programs;
    - positively correlated with the variation of the number of startups from 2016 to 2015, which means that the variation is more significant for the accelerators that have more than 10 people;
    - negatively correlated with the value for the entrepreneur who is part of the generic programs, which means that accelerators that have less than 10 people consider that the value for the entrepreneur is mostly related to the learning tools they have access to, while accelerators with more than 10 people think the value is more related to the support provided to the startups;
    - negatively correlated with the accelerator asking or not for equity in 2015, which means that accelerators that have less than 10 people usually do not ask for equity, while accelerators with more than 10 people tend to ask for equity;
    - positively correlated with the accelerator using more or less than 2 metrics, which means that accelerators that have less than 10 people tend to use more than 2 metrics, while organizations with more than 10 people generally use less than 2 metrics.

- The nature of the organization (if it is part or mostly part of the private/public sector) is
    - negatively correlated with the organization asking or not for equity in 2015, which means that private organizations tend to ask for equity, while public organizations do not usually ask for equity;
    - positively correlated with the challenges for the future, considering the categories of 'Challenges related to the value created', 'External challenges' and 'Internal challenges', which means that public accelerators are more worried about challenges

related to the value created, while private organizations are more concerned about internal challenges;

- negatively correlated with the ways the accelerator gets funding, which means that public organizations tend to look for private funding and private organizations tend to look for public funding;
- positively correlated with the number of startups that are not from the country where the accelerator program is taking place, which means that the private sector has more international startups taking part in the programs, when compared to the public sector.

5.3 Principal Component Regression (PCR)

5.3.1 Value for the entrepreneur who takes part in the generic programs

Considering the different options that respondents had to classify in the survey, those options were shortened to only 3 important dimensions using the *SPSS Software*, and those 3 dimensions explain 83,841% of the results. Table 5.1 provides a more detailed description of these conclusions. The first dimension explains the majority of the results (47,904%). In statistics, the Cronbach's (alpha) is used as a (lowerbound) estimate of the reliability of a psychometric test.

Table 5.1 - Model Summary for the topic 'Value for the entrepreneur who takes part in the generic programs'

		Variance Accounted For	
Dimension	**Cronbach's Alpha**	**Total (Eigenvalue)**	**% of Variance**
1	,845	3,832	47,904
2	,417	1,576	19,695
3	,263	1,299	16,243
Total	,972[a]	6,707	83,841

a. Total Cronbach's Alpha is based on the total Eigenvalue.

Table 5.2 includes each component's importance to each dimension. It is possible to see that the first dimension is mainly characterized through the options 'Prepared to face difficulties or barriers along the way', 'Learn tools and methodologies to help scale-up their business' and 'Benefit from accountability'. On the other hand, the second dimension is mainly characterized through 'Network extensively'. The

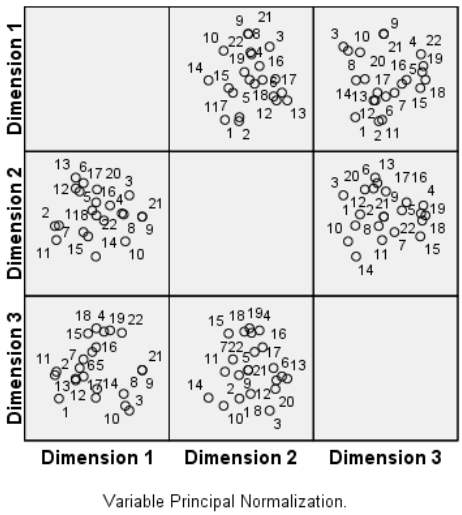
third dimension is mostly characterized through 'Learn new tools and methodologies to help structure and develop their business ideas'.

Table 5.2 - Component Loadings for the topic 'Value for the entrepreneur who takes part in the generic programs'

	Dimension		
	1	2	3
GVALUE-SPACE	,451	-,615	,489
GVALUE-NETWORK	,447	,785	,248
GVALUE-SCALE UP	,853	-,026	-,121
GVALUE-BENEFIT	,812	-,281	-,056
GVALUE-FUNDS	,700	-,131	-,616
GVALUE-BARRIERS	,886	,008	-,345
GVALUE-DISCUSS	,623	,654	,250
GVALUE-STRUCTURE	,614	-,238	,648

Variable Principal Normalization.

Figure 5.1 - Object Points Labeled by Casenumber applied to the topic 'Value for the entrepreneur who takes part in the generic programs'



Variable Principal Normalization.

Figure 5.1 represents the Object Points Labeled by Casenumber with regards to the value for the entrepreneur who takes part in the generic programs. Most accelerators that are not part of the USA, that have less than 10 people working full-time, that are part of the private sector and that use more than 3 metrics to evaluate success are very concerned with both the first ('Prepared to face difficulties or barriers along the way', 'Learn tools and methodologies to help scale-up their business' and 'Benefit

from accountability') and the second ('Network extensively') dimensions. Organizations that use less than 3 metrics to evaluate success and that tend not to run acceleration programs in more than one country are not quite concerned with the first or the second dimensions.

Organizations that are part of the public sector, that do not run acceleration programs in more than one country, that do not take equity and that use less than 3 metrics to evaluate success are generally very concerned with the first and the third dimensions. The third dimension is related to 'Learn new tools and methodologies to help structure and develop their business ideas'.

On the other hand, accelerators that are not from the USA and that are part of the private sector do not take much interest in those aspects.

5.3.2 Strategic reasons to run generic acceleration

Considering the different options that respondents had to classify in the survey, those options were shortened to only 2 important dimensions using the *SPSS Software*, and those 2 dimensions explain 82,033% of the results. Table 5.3 provides a more detailed description of these conclusions. The first dimension explains the majority of the results (48,048%).

Table 5.3 - Model Summary for the topic 'Strategic reasons to run generic acceleration'

		Variance Accounted For	
Dimension	**Cronbach's Alpha**	**Total (Eigenvalue)**	**% of Variance**
1	,784	2,883	48,048
2	,612	2,039	33,985
Total	,956[a]	4,922	82,033

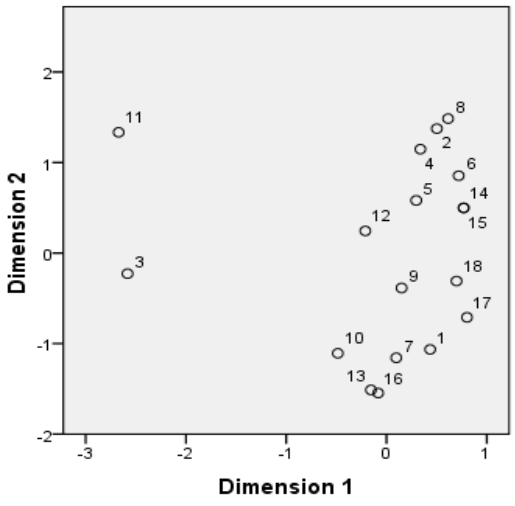
Table 5.4 includes each component's importance to each dimension. It is possible to see that the first dimension is mainly characterized as 'Support growth of the ecosystem' and 'Acceleration is our core'. On the other hand, the second dimension is mainly characterized as 'Identify good investment opportunities for our clients' and 'Identify good investment opportunities for our portfolio'.

Table 5.4 - Component Loadings for the topic 'Strategic reasons to run generic acceleration'

	Dimension	
	1	2
STRATEGIC - INTERNAL	,762	,395
STRATEGIC - TRANSFER	,744	,324
STRATEGIC - PORTFOLIO	-,183	,893
STRATEGIC - SUPPORT	,918	-,307
STRATEGIC - CLIENTS	,090	,921
STRATEGIC - CORE	,929	-,194

Variable Principal Normalization.

Figure 5.2 - Object Points Labeled by Casenumber applied to the topic 'Strategic reasons to run generic acceleration'



Variable Principal Normalization.

Figure 5.2 represents the Object Points Labeled by Casenumber with regards to the strategic reasons to run generic acceleration. Accelerators that use more than 3 metrics to keep track of their progress are equally very concerned with both the first and the second dimensions. On the other hand, organizations that do not run acceleration programs in more than one country are very concerned with the first dimension, but not so much with the second one.

5.3.3 Challenges for the future with regards to accelerators that run generic acceleration

Considering the different options that respondents had to classify in the survey, those options were shortened to 4 important dimensions using the *SPSS Software*, and those 4 dimensions explain 87,150% of the results. Table 5.5 provides a more detailed description of these conclusions. The first dimension explains the majority of the results (35,820%).

Table 5.5 - Model Summary for the topic 'Challenges for the future with regards to accelerators that run generic acceleration'

		Variance Accounted For	
Dimension	**Cronbach's Alpha**	**Total (Eigenvalue)**	**% of Variance**
1	,776	3,224	35,820
2	,593	2,117	23,518
3	,350	1,451	16,120
4	,055	1,052	11,692
Total	,982[a]	7,843	87,150

a. Total Cronbach's Alpha is based on the total Eigenvalue.

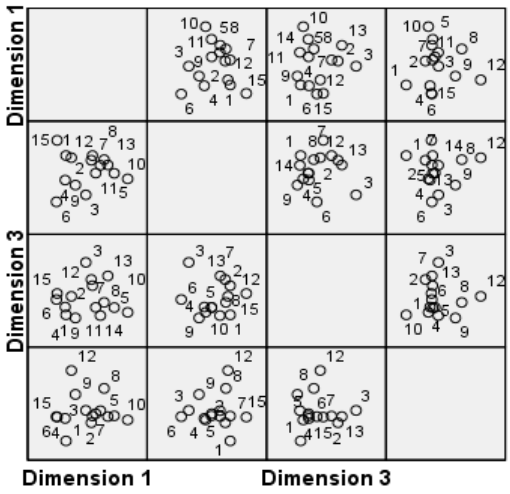
Table 5.6 includes each component's importance to each dimension. It is possible to see that the first dimension is mainly characterized as 'Build credibility', 'Measure value delivered' and 'Create global network to help startups go global'. The second dimension is mostly characterized as 'Attract quality startups' and 'Attract quality mentors', which shows that this dimension is mostly related to the importance of attracting a quality team. On the other hand, the third dimension is mostly characterized as 'Optimize internal processes'. Finally, the fourth dimension is characterized as 'Attract funding for startups' and the 'Financial sustainability of the acceleration business model', which makes this dimension mostly related to money issues.

Table 5.6- Component Loadings for the topic 'Challenges for the future with regards to accelerators that run generic acceleration'

	Dimension			
	1	**2**	**3**	**4**
CHALLENGE-CREDIBILITY	,839	-,029	,412	-,176
CHALLENGE-STARTUPS	,520	,817	-,050	-,018
CHALLENGE-COMPETITION	,635	-,501	-,196	-,396
CHALLENGE-FUNDING	,507	-,490	,202	,606
CHALLENGE-MEASURE	,738	-,271	,320	-,229
CHALLENGE-NETWORK	,828	,118	-,160	,051
CHALLENGE-MENTORS	,358	,808	-,284	-,116
CHALLENGE-FINANCIAL	,482	-,032	-,599	,567
CHALLENGE-OPTIMIZE	-,012	,465	,795	,327

Variable Principal Normalization.

Figure 5.3 - Object Points Labeled by Casenumber applied to the topic 'Challenges for the future with regards to accelerators that run generic acceleration'



Variable Principal Normalization.

Figure 5.3 represents the Object Points Labeled by Casenumber with regards to the challenges for the future of accelerators that run generic acceleration. Organizations that do not run acceleration programs in more than one country, that use more than 3 metrics to track their progress and that ask for equity are

equally concerned with both the first and the second dimensions. Conversely, accelerators that are not from the USA are usually not very concerned with those dimensions.

Accelerators that are from the USA, that do not run acceleration programs in more than one country and use more than 3 metrics to keep track of their progress tend to be very concerned with both the first and the third dimensions. On the other hand, the organizations that are not from the USA and that are part of the public sector are generally not very concerned with those dimensions.

Organizations that are not from the USA and that have less than 10 people working full time are usually not very concerned with both the first and the fourth dimensions.

Accelerators that are part of the private sector, that do not run acceleration programs in more than one country and that ask for equity are generally very concerned with both the second and third dimensions.

Organizations in the private sector, that do not run acceleration programs in more than one country and that ask for equity tend to be equally concerned with both the second and the fourth dimensions.

5.3.4 Challenges for the future with regards to accelerators that may or may not run generic acceleration

Considering the different options that respondents had to classify in the survey, those options were shortened to 4 important dimensions using the *SPSS Software*, and those 4 dimensions explain 86,568% of the results. Table 5.7 provides a more detailed description of these conclusions. The first dimension explains the majority of the results (29,252%).

Table 5.7 - Model Summary for the topic 'Challenges for the future with regards to accelerators that may or may not run generic acceleration'

Dimension	Cronbach's Alpha	Variance Accounted For	
		Total (Eigenvalue)	% of Variance
1	,698	2,633	29,252
2	,651	2,373	26,367
3	,448	1,662	18,472
4	,123	1,123	12,477
Total	,981[a]	7,791	86,568

a. Total Cronbach's Alpha is based on the total Eigenvalue.

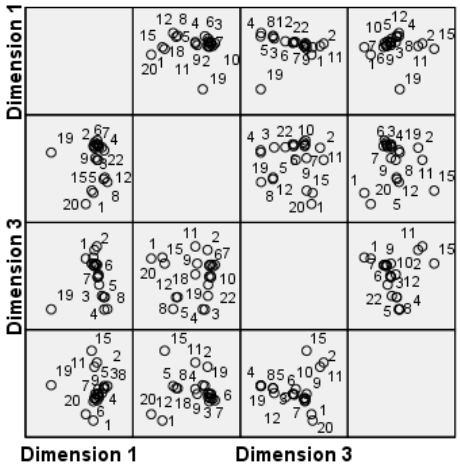
Table 5.8 includes each component's importance to each dimension. It is possible to see that the first dimension is mainly characterized as 'Create global network to help startups go global' and 'Financial sustainability of the acceleration business model'. The second dimension is mostly characterized as 'Measure value delivered' and 'Build credibility'. On the other hand, the third dimension is mostly characterized as 'Attract quality startups'. Finally, the fourth dimension is characterized as 'Optimize internal processes'.

Table 5.8- Component Loadings for the topic 'Challenges for the future with regards to accelerators that may or may not run generic acceleration'

	Dimension			
	1	2	3	4
CHALLENGE-MEASURE	-,176	,839	-,113	-,162
CHALLENGE-CREDIBILITY	-,137	,929	,144	,015
CHALLENGE-NETWORK	,892	-,049	,411	-,078
CHALLENGE-STARTUPS	-,465	,154	,744	-,047
CHALLENGE-MENTORS	-,470	,163	,679	-,250
CHALLENGE-FUNDING	,230	,666	-,250	,564
CHALLENGE-OPTIMIZE	-,038	-,145	,481	,818
CHALLENGE-COMPETITION	,701	,532	,037	-,181
CHALLENGE-FINANCIAL	,897	-,072	,388	-,077

Variable Principal Normalization.

Figure 5.4 - Object Points Labeled by Casenumber applied to the topic 'Challenges for the future with regards to accelerators that may or may not run generic acceleration'



Variable Principal Normalization.

Figure 5.4 represents the Object Points Labeled by Casenumber applied to the challenges for the future of accelerators that may or may not run generic acceleration. On average, accelerators are mostly concerned with the first dimension (‘Create global network to help startups go global’ and ‘Financial sustainability of the acceleration business model’), when compared to the other three dimensions.

Organizations with more than 10 people working full time and that are part of the public sector, tend to be equally concerned with both the first and the second dimensions. Accelerators that are not from the USA and that have less than 10 people working full time are more concerned with the first dimension than with the second one.

When comparing the first and the third dimensions, it is possible to conclude that most organizations are concerned with the first dimension and half of them has the third dimension as a priority and the other half does not. Accelerators in the public sector are more concerned about the first dimension than with the third one.

On average, accelerators are more interested in the first dimension than in the fourth one. The accelerators that take interest both in the first and the fourth dimensions tend not to be from the USA, be part of the private sector, ask for equity and use less than 3 metrics to track progress.

Considering the second and third dimensions, accelerators that are not from the USA and that do not run acceleration programs in more than one country usually take equal interest in both those dimensions. On the other hand, organizations that are part of the public sector and that use less than 3 metrics to evaluate success are not very interested in any of those dimensions.

Accelerators that are part of the public sector are usually more concerned about the second dimension, rather than the fourth one. Finally, accelerators that are not from the USA, that have less than 10 people working full-time and that do not run acceleration programs in more than one country do not take much interest in any of those dimensions.

Chapter 6

Results: Case Studies

This chapter includes the methodology used to structure the Case Studies and Case Studies regarding some accelerators across the world: TechStars & UP Global, NUMA, Bethnal Green Ventures, 500 Startups and Beta-i. Each of these presents an interesting business model that is carefully analysed throughout this section.

6.1 Structuring of the Case Studies

The first step regarding the development of the Case Studies was to study accelerators with interesting business models that had some commonalities with the information previously collected from the survey, in order to further study specific aspects of those entities.

The next step was to structure an interview that would be directed at those selected accelerators. The objective was to create a common set of questions, including only the necessary variations applicable to each organization. Therefore, it would be possible to analyze and compare the information gathered.

The designed interview was then assessed by elements of Beta-i and Professor António Grilo, who made valuable comments regarding the various questions that were being included.

Then, the next step was to interview the person who worked at the accelerator and those interviews were conducted via Skype and recorded for further analysis.

Several generalist documents regarding the structuring of Case Studies were taken into consideration, in order to properly develop the ones for this research work. Once the interview was finished, it was transcript into the computer and the information was grouped into three different categories:

- ‘Introduction’, which briefly explains the main traits of the accelerator;
- ‘How it works today’, which mostly presents the current business model of the accelerator and the benefits that startups get when joining the programs;

- ‘Looking at tomorrow’, which analyses the accelerator’s expectations for the future, as well as challenges and priorities that it may have.

6.2 Case Studies

6.2.1 TechStars & UP Global

Introduction

Techstars is a mentorship-driven startup accelerator founded by David Cohen, Brad Feld, David Brown and Jared Polis in Colorado, U.S.A., back in 2006. Techstars holds 13 week programs for startups and has built up a network of programs across the USA and Europe and specific verticals like health and education. On the other hand, UP Global is a non-profit group that organizes the entrepreneur events Startup Weekend, Startup Week, Startup Next and Startup Digest. UP Global is dedicated to fostering entrepreneurship, grassroots leadership and strong communities and its mission is to make the world a more innovative and prosperous place. In UP Global, there is the belief that entrepreneurs are critical in the process of driving a strong global economy and a better world.

In 2015, Techstars acquired UP Global, including the organization’s Startup Weekend, Startup Week, Startup Next and Startup Digest programs. Techstars and UP Global have a long-standing relationship dating back to 2007 when the idea for Startup Weekend was born out of the Techstars basement in Boulder, Colorado. Startup Weekend was created as a community event for the first Techstars class to get to know each other.

This is Techstars’ third ‘acquisition’ of an organization, after taking over Springboard in London and Excelerate Labs in Chicago to expand its main accelerator program. It also acquired NameLayer, a portfolio and marketplace for domain names.

How it works today

In 2010, UP Global had the idea for what was called ‘Entrepreneur’s Journey’, which aimed to track and understand entrepreneurs and the stages they go through. At some point, UP Global wondered if it was actually possible to build an organization that meets every single one of those stages. The original product, Startup Weekend, served a very specific stage on that Entrepreneur’s Journey, as well as Startup Digest, Startup Week and Startup Next. A lot of value was created regarding the earlier stages, but a question came up: why wouldn’t UP Global also support later stages? UP Global had been close to

Techstars since its inception and at some point, the organization started to truly consider ways to expand its business model and make it less reliant on corporate sponsorships. Moreover, this acquisition would help UP Global with deal flow and market growth. On the other hand, Techstars's mission was about supporting entrepreneurs to get to market anywhere in the world and they knew and trusted UP Global. The success of an acquisition is based on values and culture and Techstars already shared board members with UP Global, and their culture was very aligned. Because of that, this was an acquisition that everybody could step back and predict it would have a very high degree of success.

Since the acquisition, some positive changes have happened: there is a bigger vision that completes the original vision at Startup Weekend of the Entrepreneur's Journey, there is a complementary team with broader experience and capabilities to pursue the combined mission and there is a sustainable business model that makes it possible to not only create great value for the world and thousands of startup founders, but that also enables the participation in the upside of that value which is created in the earliest of stages. The pillars of such business model are based on exits, partnerships and the global reach of entrepreneurship, with regards to the economic and social value of acceleration.

The set Techstars plus UP Global differentiates itself from other accelerators because there is a true long term vision that is investing in communities around the world that will ultimately help produce more successful entrepreneurs and also because it is the world's largest global network of startup founders, community leaders, investors, mentors, corporations, institutions and aspiring entrepreneurs.

Looking at tomorrow

According to Marc Nager, the most important benefit arising from the acquisition is the ability to pursue an even larger and more ambitious vision. In Techstars, the majority of founders who were part of the programs already had Startup Weekend play a meaningful role in their journeys that led to Techstars, so that process will be easier and clearer for the founders in the future. UP Global as a brand will continue to sunset as its assets are shift under Techstars.

In the future, there will also be greater access to more entrepreneurs everywhere. Techstars and UP Global by no means have any requirements or exclusive interest in supporting entrepreneurs at any stage, but if a good job is done, which includes offering the best resources for founders, they will continue to want to work with the accelerator throughout their lifecycle.

For the next couple of years, the accelerator is focused on doing what is being done and doing it really well, believing in quality over quantity, so there are no big major plans additional to what is already being done.

In order to complete the vision of the entrepreneur's journey that is shared between UP Global and Tech Stars, there may be a focus on helping companies at later stages. Regarding scale-ups, Marc Nager believes it is mostly related to the network: can you connect people to the right places, the right resources at the right time? If the answer is yes, their rate of growth will be drastically increased. In the future, it will not be the programs that provide any competitive advantage, it will be the network, because the differentiation is going to come from aspects such as the available mentors, available connections for the teams or the alumni base.

By 2020, Marc Nager hopes to see Techstars and all of its programs truly advancing entrepreneurship to lengths we can only hardly imagine today. Nowadays, we are at the beginning of a cultural shift and entrepreneurship is probably one of the most genuine unifying vehicles and value sets that will define it. Specifically for Techstars, Marc imagines thousands of startup programs every year, hundreds of accelerators, and billions of dollars of capital being invested into founders on every continent, generating great outcomes in the form of successful companies that have a meaningful impact both economically and socially.

Figure 6.1 - Techstars & Up Global

6.2.2 NUMA

Introduction

NUMA, located in Paris, France, followed the maturity of the French ecosystem. The first step was to connect the entrepreneur at the beginning of year 2000 and it started by being an Entrepreneurs' Club. Then, in 2008, NUMA created the first co-working space in France, because entrepreneurs needed a place to work and develop their projects. At some point, they wanted to become startups and be accelerated. In 2011, the organization had the first accelerator in France, looking at what was being done in the USA. After that, NUMA thought that some corporates in France were ready to work with startups and not being just sponsors of the acceleration program. In 2014, the innovation program was created.

Nowadays, NUMA is a thriving community space with co-working, events, training and accelerator classes for rising startups. NUMA Sprint is NUMA's 4-month accelerator program for promising French startups and Google for Entrepreneurs is a primary sponsor of NUMA and NUMA Sprint. In each cycle of the program, 22 teams are selected to 'sprint' for 6 months at NUMA. During this time, the sprinters are coached by 140 mentors, including entrepreneurs and experienced engineers.

At NUMA, digital innovation is considered to be a way to create economic and social value and all types of entrepreneurs are enabled to collaborate. Startups, corporates, SME's, communities and public institutions, far from opposing one another, can grow together and become mutually beneficial. By expanding internationally, NUMA looks forward to sharing this vision of innovation as a vector for change throughout society.

How it works today

NUMA differentiates itself from other accelerators because of its open model that aims to create porosity between people in ideas, startups and organizations, with a mix of 3 pillars: diversity, openness and performance.

This organization is more than an accelerator: there are acceleration programs, but also Open Innovation, Hackathons and Community events. NUMA looks forward to being at every stage of the value proposition between the ecosystem and corporates and tries to have an answer and format for each stage of maturity of where you are with innovation. Having one-to-one meetings between corporates and startups or having corporates as speakers in a conference focused on a new trend or technology, is what is called acculturation. There is also the Open Innovation program or Acceleration program dedicated to the corporates. Since the beginning, NUMA has considered that corporates are part of the innovation ecosystem and there is a fruitful relationship between them and startups at NUMA, which is developing constantly and is always moderated by the organization. Moreover, corporates can become investors, business partners, mentors, experts or even technical partners in order to help startups at specific moments of their lifecycle.

Startups benefit from being part of the programs because NUMA groups the best people (EIR/resources/team) to bring human capital; there are qualified intros with corporate partners to help them grow; they have access to a valuable network, financial support (25K€ to each one) and 4 month hosting.

On average, 79% of startups are still alive after 5 years of being part of the program and they raise 550K€ after 7 months. NUMA evaluates its success based on how long the startups live, how strong they are and their performance in fundraising capacity. In the future, startups get more visibility with NUMA label, they reach seed fundraising and benefit from NUMA's resources. According to Romain

Amblard, who works here, the most important aspect about accelerators is the network, but this notion is very vague and there are a lot of different networks that can help startups, so it is also about finding the right people at the right time, for the startups.

Looking at tomorrow

NUMA's business model evolved a lot as the years went by. Being a co-working, there is one business model in the renting space. Being an accelerator, there are two models: having sponsors or taking equity. At the beginning, NUMA was focused on having sponsors, but the strategy was changed last year to also take equity and to invest. The last business model is about helping corporates to transform and to be part of the ecosystem.

NUMA has a road map and wants to reach a worldwide footprint, developing the organization in Europe and emerging markets, i.e., be where ideas and entrepreneurs are. It is not about having partners everywhere, but being there everywhere, with the goal of reaching 15 different countries before 2019. The goal is not to have the largest network in the world, but a relevant network in which NUMA's culture is locally implemented, in order to bring growth and human capital to ideas, with a strong DNA of a 'human network'. NUMA also looks forward to having a strong and active alumni community that mentors, supports or invests in NUMA's startups. Moreover, NUMA wants to become a Global Tech Hub, a global solution for innovative ideas, corporates that want to transform and startups around the world.

Figure 6.2 - NUMA

6.2.3 Bethnal Green Ventures

Introduction

Bethnal Green Ventures, located in England, is looking for early stage technology startups that are tackling problems in the areas of health, education, sustainability and democracy and society. The idea

must have the potential to help millions of people somewhere along the line and those who apply must want to change the world by using technology.

Bethnal Green Ventures invests in and supports great teams with new ideas to help build solutions to social and environmental problems through an intensive 3-month program. This happens because Bethnal Green Ventures thinks there is huge potential for the online world to improve things that really matter in the offline world: from how health and social care are provided to designing new forms of education, energy creation and employment. Bethnal Green Ventures tries to find people with great ideas and the organization looks for very early-stage ideas, having more interest in their potential rather than the founders' experience. The teams usually have between 2 and 4 people and the organization invests 15,000€ in each team in exchange for 6% equity. The goal is to not only launch a set of new ventures, but to build an alumni community that will go on to create and run even more social startups in the future.

How it works today

The idea for Bethnal Green Ventures goes back to 2008, when there were hack weekends for people who worked in tech and understood particular social problems. The organization realized that very talented people were being attracted, so the model spread to about 25 other countries as well and they were named Social Innovation Camps. However, at the end of the weekend, people would often ask: how do I quit my job and turn this into a startup? That is the reason why Bethnal Green Ventures was created. In the beginning of 2011, a prototype was run: some of the teams got funding and everybody got a lot out of it. Then, the evidence was taken to NESTA, they decided to provide funding and people in the accelerator who were working spare time started to work full time. As the years went by, the model kept proving its value. Nowadays, Bethnal Green Ventures differentiates itself from other accelerators because it focuses on achieving a positive social impact and that is what motivates all the tech startups that are part of the programs. In this organization, there is the belief that technology has the power to help improve the world we live in - whether that is the health or education of the population or our environment.

Another distinguishable feature is that the organization is not owned by angel investors and while trying to build something sustainable, there is the commitment to reinvest returns that are made. The organization's business model is based on getting money from the funders, which is split into investing into teams and paying for the overheads of running the program for them. The long term of this model is to try to get return on the investment that is made and make the organization self-sufficient, which is a core value that brings startups and the accelerator together.

Startups that participate in the programs benefit from getting investment, free office space, access to the mentors and a program of workshops and learning. The founders often rate the peer group and access to the alumni network as the most valuable aspects of being selected by Bethnal Green Ventures. The most popular business sectors amongst startups joining the programs are Health (37%) and Education and Learning (28%). The future for these startups is very promising: 63% of them have raised external follow-on funding totalling over 20 million € between them.

In order to evaluate its progress, Bethnal Green Ventures measures the total number of alumni and how they engage with all the tools and events provided. A successful event is considered to be a positive social impact on millions of people and that is measured in different ways for different ventures. According to Paul Miller, who works at this accelerator, there is a lot more people interested in social impact tech accelerators, particularly in Bethnal Green Ventures.

Looking at tomorrow

Bethnal Green Ventures aims to be the best early stage investor and supporter of 'tech for good' ventures in Europe. The organization looks forward to growing beyond the UK and to attracting and working with social ventures from across Europe. Moreover, it is also a goal to do more later stage funding.

At the moment, Bethnal Green Ventures funds at the accelerator stage, but there is also the possibility of funding people after the accelerator, and to provide investment at seed stage as well. In order to provide more capital to startups as they develop, Bethnal Green Ventures will focus on creating partnerships in places in Europe that are interested in social impact. In this area of social impact, there is a spectrum between completely not for profit models where organizations give grants to the ventures, not with any expectation of a return and programs that are a group of angel investors that want to see a return and quite quickly. However, it is still too early to conclude which models are best.

According to Paul Miller, more mainstream acceleration programs are getting interested in social impact startups. Some accelerators have already invested in this area, but since they do not always have a good support network, they come to Bethnal Green Ventures because they know the organization is comfortable with them sticking with the goal of this kind of impact. Furthermore, they are not put under pressure to just divert because there is an opportunity that comes up that is more financially lucrative but that does help them achieve their social impact.

Figure 6.3 - Bethal Green Ventures

6.2.4 500 Startups

Introduction

500 Startups is an early-stage venture firm and accelerator founded by Dave McClure and Christine Tsai in California, USA, back in 2010. The fund admitted a first class of 12 startups to its incubator office in California in 2011. They expanded to a second class later that year and a third class by the end of 2011. In 2012, the organization acquired Mexican.VC, an accelerator in Mexico City, expecting to ramp up its investment in Mexico substantially.

Nowadays, 500 Startups invests in all kinds of companies, which includes themes such as consumer commerce, family tech and education, design, ad tech or online video. Startup founders who participate in the programs have access to a network of more than 1000 founders, more than 200 mentors and staff, who are willing to give guidance and advice when it is most needed. 500 brings in a wide variety of experts focused on marketing, culture, startup accounting, product design, mobile, user testing and sales. Startups live in the office for 4 months and are able to build relationships and partnerships that would not be possible at their size without 500. Being a 500 Startups company will validate one's business, and the network will help connect with investors when the time is right.

Up to this moment, 500 Startups has locations in Silicon Valley, Mexico City and San Francisco. In 2015, it was announced that they would be starting a 3-month growth program in London, UK and a pre-accelerator in Oslo, Norway.

How it works today

500 Startups differentiates itself from other accelerators because it is focused on fundraising, growth and distribution and it has actively invested in quite a lot of resources to help the companies. Such resources include online marketing and sales experts, who work with startups on metrics, marketing channels and sales processes. Entrepreneurs-in-Residence, who are all ex-founders, also provide support by working with the startups. Another distinguishable feature of 500 is the strong sense of community: every single company and founder that is brought into the network becomes part of the network and all companies work with each other and help each other out. 500 Startups selects later stage startups and almost every single company has some working product and some customers and revenues already. Up to 25% of their startups have been in accelerators before.

The programs usually add much value to the startups that join them, mostly related to the network and the community. In that way, startups have access to people they normally would not, which includes investors, mentors and other founders.

Since the network is an important part of the program, 500 Startups evaluates it and other aspects by trying to understand if the startups have raised money, how much money they have raised, if they grew through the program, the number of customers they have at the end of the program, and others relevant metrics. Furthermore, 500 Startups values NPS Scores and does a post-program survey, as well as a mid-batch survey. Questions such as 'Was the mentor network helpful?', 'What did you like and did not like?', 'How was Demo Day for you?' or 'Would you recommend this program to someone else?' are normally asked in order to track progress. 90% of people would highly recommend the program to other founders and other investors.

These programs are not only popular amongst startup founders, but also amongst corporates, that are becoming increasingly interested in accelerators and startups.

Looking at tomorrow

500 Startups is launching some new initiatives, such as 'The Secrets of Venture Capital, Unlocked', that was created because of the countless requests from investors and partners who were curious to find out 500's secrets to be such an active seed investor. This program is beneficial for 500 too because it helps build more deal flow from top of funnel and also because the better other accelerator programs, the better it is for 500 in general as investors i.e. the more quality startups will be out there. There is also the course 'Corporate Startup Innovation Unlocked', which is a 4-day intensive course to teach digital innovation leaders how to tap into the startup ecosystem. These programs show that there is a significant focus on education, because it is considered to be important for the ecosystem and there is starting to be a demand both from corporates and the government. Nowadays, there are also many people who could improve their knowledge on how to run an accelerator so that more value can be provided and 500 Startups thinks it is important to act on that.

Initially, 500 Startups focused on startups, but now there is an expansion towards corporates and accelerators. Moreover, the accelerator wants do some experiences with the earlier stages, including pre-acceleration, to find out what the right format would be to create value and then scale up all over the world. 500 Startups thinks there is a need for them in almost every ecosystem across the world and additionally it helps them build a pipeline of deal flow for accelerator as well as seed fund. Besides these initiatives, 500 Startups will continue to focus on acceleration.

There is also the Distro Dojo program, a post seed program for companies that have raised seed money but do not have the metrics for series A. This is a 12-week program in which every company is paired with a distribution person to help them figure out their metrics and their growth engine. According to Marvin Liao, 500 Startups is taking this program on the road, looking forward to supporting later stage companies and make them get to the next level, because there is a big market from the startup side.

500 Startups faces different challenges that are expected to keep existing in the future such as how to manage burnout from the team, how to scale and keep the quality at the same time, how to continue competing against the top accelerators, which includes concerns such as how to scout better startups or how to make the program better.

Figure 6.4 - 500 Startups

500 startups

6.2.5 Beta-i

Introduction

Beta-i is a non-profit organization, focused on acceleration and pre-acceleration, as well as corporate-startup space, having a community oriented mission. Beta-i started in Lisbon back in 2010, as a side project of a few people who came together through friends of friends. They all had different objectives and views but a common goal was bringing them together: to kick start the Portuguese startup scene. Started as a grass roots movement, Beta-i grew to launch the first ever accelerator in Portugal, back in 2011.

Beta-i is considered to be quite international, since the official language is English and there are international mentors and startups. When Beta-i was launched, all the founders were entrepreneurs: it was an association of entrepreneurs for entrepreneurs. These people had already launched businesses outside Portugal, so they brought this network to the accelerator. Therefore, the baseline had a considerable network from the beginning.

Beta-i sees itself as a platform that aggregates different players and stakeholders, being connected to investors, mentors, corporates, startups and the alumni network. It is usual for the alumni to do the

mentoring and the workshops for the Beta-start and Lisbon Challenge. This network grows on its own and replicates, which is also related to the goal of giving back to the community.

How it works today

At the beginning, there were a lot of horizontal accelerators, very generalist. After that, Beta-i started to notice the trends, particularly related to sectors that still had the potential to be disrupted (insurance, for instance, which was the first specific industry that Beta-i has focused on). By running vertical programs, Beta-i has increased its credibility and knowledge on integrating startups with corporates.

Beta-i is the platform where startups and corporations meet halfway, and this is the accelerator's key advantage because there is relevant difference in velocity and mindset separating startups from large corporations.

Startups benefit from being part of the programs because they have access to the network and to people they would not have access to other way, they get credibility and access to validation tests. If startups are not part of an acceleration program, it can take up to several months to arrange meetings with important people such as CEOs or managers. Validation is also an important aspect: if a large company is working with a startup that has been part of Beta-i's acceleration program, and takes this startup to important clients, the startup's credibility increases significantly, being easier for the startups to succeed. Therefore, the startup has access to a whole new set of opportunities.

Beta-i believes that corporate-startup collaboration is fundamental for the healthy growth of the ecosystem. Corporates are looking for innovation and startups are looking for clients, partners and investment, so this is a win-win situation. Therefore, there is this belief in gathering together corporates, startups and Beta-i itself. Corporates are usually very big in dimension and they have this ability to create new trends so if they use technology coming from a startup, they can create this trend in the market. Furthermore, in a company there are few projects of internal innovation at a time, while at Beta-i there are around 15 startups in a very short period of time. In around 2 months it is possible to find out if their product is worth it or not.

Looking at tomorrow

As the time passes by, Beta-i is becoming more and more connected to corporates, not only as a way of assuring sustainability for the accelerator, but also for the added value for Beta-i, startups, investors and universities. Beta-i will always be available and will always provide support to the startups: the startups always come first, in case of doubt.

Some ideas to enhance the connection between startups and corporates in the future are related to running events or workshops, launching a pre-accelerator or allowing corporates to do mentoring sessions for some startups. If corporates look forward to investing, they can do so by using Beta-i's fund; if they already have their own fund, Beta-i can do the scouting for them to invest in. Beta-i can also create an accelerator having various partners because that lowers the level of investment and risk of each of them.

Duarte Fonseca thinks that Beta-i may become a multinational organization, operating in different places. Three years ago, there were 8 people in Beta-i's team. Nowadays, there are 35 people and it is expected that the team will have many more elements, and that more internal skills will be available. It will be necessary to have a certain financial capacity to improve the team, but Duarte Fonseca believes that Beta-i will manage to become a reference in the European and global ecosystem in the future. In his opinion, there will be 4 or 5 big European players, plus the American ones that already exist, and Beta-i may be one of those few players. This is due to the accelerator having the complete value chain and there are not many accelerators having that. Moreover, Duarte Fonseca believes Beta-i will be a case study on a global level for being so complete. If each part is analysed individually, Beta-i may not be the best accelerator in the world, but the total of the parts is quite valuable.

Figure 6.5 - Beta-i

Chapter 7

Addressing the Research Questions

In this chapter, there is an analysis of the results, including aspects of the quantitative analysis based on descriptive statistics, the statistical inference and the Case Studies, and therefore the research questions are addressed.

7.1 How are accelerators evolving around the world?

Accelerators exist in a worldwide scale, but the majority of the organizations are from the USA, Spain and France, according to the sample collected from the survey. Most organizations are part of the private sector and are privately held, while a small number is part of the public sector. Having less than 10 people working full-time is a common trend amongst those organizations. Accelerators that are not from the USA usually have less than 10 people working full time at their organizations, whereas organizations from the USA tend to have more than 10 people working full time.

Most accelerators do not run acceleration programs in more than one country, preferring to stay local. Accelerators that have less than 10 people usually do not run acceleration programs in more than one country, and a few accelerators that have more than 10 people tend to establish their programs internationally.

Moreover, accelerators may choose to include or not international startups in their programs, and some of them prefer to only have national startups taking part in the programs.

Taking or not equity is an important part of any accelerator's business model. According to the quantitative analysis, most organizations took equity in 2015 and will do so in 2016, so the trends do not vary from one year to the other. On average, the organizations that took equity in 2015 asked for 8,08% of equity and the organizations that will take equity in 2016 will ask for 8,1% of equity, which shows that there are no significant differences from one year to the other. Accelerators that are not from the USA usually do not ask for equity, while the accelerators from the USA tend to ask for equity. On

the other hand, accelerators that have less than 10 people usually do not ask for equity, while accelerators with more than 10 people tend to ask for equity. Private organizations usually ask for equity, while public organizations tend not to do so.

The way the accelerator gets funding is another significant element of its business model and private sponsorship is the most common way for accelerators to get funding, followed by their own budget. Public organizations tend to look for private funding, whereas private organizations tend to look for public funding.

Although there are some accelerators that have done acquisitions and mergers, this is not a very popular trend amongst these entities, and most of them do not look forward to going that way in the future. Some accelerators look forward to creating partnerships with other organizations that share the same values and/or culture. In case of an acquisition or merger, the values shared by both organizations are extremely important to make a peaceful and successful transition. One of the benefits arising from an acquisition is that there is a complementary team with broader experience and capabilities.

Some accelerators are moving towards verticalization (becoming vertical accelerators), which allows them to increase their credibility and knowledge on how to integrate startups with corporations. This somehow contradicts the results from the survey, because according to the sample that was collected only a small number of organizations runs vertical acceleration. This may be due to the fact that some organizations may still be in a transitory stage.

Other accelerators are focused on internationalization, looking forward to reaching a worldwide footprint.

Helping startups throughout their lifecycle is any accelerator's main goal, but some of them are particularly focused on supporting startups that are at a later stage of their development. Accelerators may be focused not only on running acceleration programs but also Open Innovation programs, Hackathons and diversified community events. Some accelerators, such as Bethnal Green Ventures, are focused on social causes such as health, education and sustainability and their objective is to achieve a positive social impact. For a social accelerator, a successful event is considered to be a positive social impact on millions of people.

It is a priority for some accelerators to invest in the corporate-startup collaboration, for the healthy growth of the ecosystem. Moreover, some accelerators will keep investing in the relationship with large corporations and a considerable amount of these organizations considers corporates to be part of the ecosystem. Corporates may become investors, business partners, mentors or experts to help startups throughout their lifecycle.

Accelerators may benefit from a strong sense of community, with the startups that join the programs helping each other out.

7.2 What characterizes the dynamics of acceleration programs?

Most organizations run generic acceleration and a small number of organizations run vertical acceleration and pre-acceleration.

Considering the organizations that run generic acceleration, those that do not run acceleration programs in more than one country, that use more than 3 metrics to track their progress and that ask for equity are equally concerned with challenges such as 'Build credibility', 'Measure value delivered', 'Create global network to help startups go global' or 'Attract a quality team of startups and mentors'. Considering the organizations that may or may not run generic acceleration, they are mostly concerned with challenges such as 'Create global network to help startups go global' or the 'Financial sustainability of the acceleration business model', when compared to the other challenges.

There are different strategic reasons for an accelerator to run generic acceleration. Based on the data collected from the survey, it is possible to conclude that the top three reasons are the possibility to support the growth of the ecosystem, the fact that acceleration is the organization's core and the possibility to identify good investment opportunities for the accelerator's portfolio. Accelerators that use more than 3 metrics to keep track of their progress value the following strategic reasons to run generic acceleration: possibility to support growth of the ecosystem, acceleration being their core and the opportunity to identify good investment opportunities for their clients.

Generic programs may be valuable for entrepreneurs in a variety of ways. According to the sample collected from the survey, entrepreneurs benefit from the possibility to discuss their business challenges with experienced mentors, they have the chance to learn tools and strategies to help scale-up their business and they learn new tools and methodologies to help structure and develop their business ideas. Accelerators that have less than 10 people consider that the value for the entrepreneur is mostly related to the learning tools they have access to, while accelerators with more than 10 people think the value is more related to the support provided to the startups. Most accelerators that are not part of the USA, that have less than 10 people working full-time, that are part of the private sector and that use more than 3 metrics to evaluate success think that entrepreneurs benefit from accountability, from being prepared to face difficulties or barriers along the way, from learning tools and methodologies to help scale-up their business, and from being able to network extensively. Organizations that use less than 3 metrics to evaluate success and that tend not to run acceleration programs in more than one country do not particularly value the previously mentioned aspects.

Accelerators use a wide range of metrics in order to track progress and improve their performance and such metrics tend to vary according to the nature of the organization. According to the survey, the number of applications, the survival rate of startups going through the program(s) and the partnerships

created are the most popular ones amongst organizations. Organizations that have less than 10 people tend to use more than 2 metrics, while organizations with more than 10 people generally use less than 2 metrics to evaluate success. On the other hand, accelerators that are not from the USA generally use less than 2 metrics and the organizations from the USA tend to use more than 2 metrics.

The future for accelerators is full of various challenges, that are perceived differently according to each organization. The main challenges for accelerators are related to how to attract quality startups, how to attract quality mentors and how to build credibility. Accelerators with less than 10 people are more worried about challenges related to the accelerator and elements of the ecosystem, while accelerators that have more than 10 people are more concerned about the challenges related to the accelerator itself. Accelerators that are not from the USA are more concerned about internal challenges, while accelerators that are from the USA are more concerned with challenges related to the value created. Public accelerators are more worried about challenges related to the value created, while private organizations are more concerned about internal challenges.

Most organizations' first priority for the future is to try to develop and implement different models of acceleration from existing ones, while their second priority for the future is to improve their network of mentors.

Accelerators always try to provide the best possible resources to the startups that join their programs and startups, corporations, public institutions and other entities can grow together and become mutually beneficial.

Chapter 8

Conclusions, Limitations and Recommendations for Future Research

In this chapter, the main conclusions that were reached through the development of this research work are presented. Moreover, the limitations that we had are explained and some recommendations for future research are presented.

8.1 Conclusions

The development of this dissertation allowed us to study the phenomenon of accelerators, which are spreading around the world, and a formal analysis was conducted in order to better understand their current and future trends.

In order to improve our understanding on the topic of this research, we conducted a literature review to obtain a robust theoretical foundation of knowledge on the various topics of interest to the scope of this dissertation. Different sources of information were taken into consideration, such as books, academic research works, reports and websites, in order to collect data on the concepts of entrepreneurship, entrepreneurial ecosystems and accelerators.

Then an online survey was carried out and some Case Studies were structured and developed. This allowed us to address the research questions, thus understanding the reality behind accelerators. In that way, we concluded that accelerators are indeed a worldwide phenomenon, due to the impact they have both on entrepreneurs and the economic development of the region they operate in. Accelerators provide an undeniable support to the startups that join the programs, who benefit from having access to valuable learning tools or networking opportunities.

These organizations vary substantially when it comes to their business models and, based on their nature and characteristics, they have different ways of facing challenges and priorities for the future.

Accelerators may have different ways of assessing their performance, but it is undeniable that they all look forward to keeping track of their progress in order to improve overtime. This also leads to the realization of how important it is to invest in a global cooperation between them, in order for them to grow and improve together. Sharing information while learning from others is of great importance if one looks forward to improving over time.

By having understood the way accelerators are structured and the way they look at the future, we provided some valuable insights for the community. This research work allowed us to have a generalist portrait of these entities and to understand their functioning and interactions within the ecosystem.

There were some limitations that affected this research work, but we think of it as having been successfully conducted, with the results hereby presented constituting a relevant contribution to the entrepreneurial community.

8.2 Limitations

Overall, this academic research work was successful because it provided a complete study on accelerators, through the development of a valuable portrait of these entities and also because it managed to address the previously defined research questions.

However, throughout the development of this study we were faced with some limitations related to the nature of the research which may affect the applicability of the results.

A very important limitation is related to the sample size of the survey, which we found to be rather reduced. Although a total of 50 answers was collected, there were respondents who did not answer every question of the survey because some of the questions were optional. Because of that, the analysis included some topics that were much more reliable to analyse in comparison to others that had significantly less answers. When the amount of available data was undeniably insufficient, those aspects were not taken into consideration with regards to the statistical analysis. Still, the statistical analysis was carried out whenever it was possible, by using the adequate methods to study the available information.

With regards to the survey, the most representative countries were France, Spain and the USA. This constitutes a valuable sample, but it would have had been better to have access to quantitatively relevant data from other countries, such as the United Kingdom or Israel, that are interesting players in the accelerator sector.

Another limitation is related to the fact that we had to create a different classification for some of the questions and respective answers, in order to have more observations per category to analyse. Those reclassifications were carefully designed, so that they would still be logical and would still make sense according to the context of the research. However, it would have had been more suitable not to have to go through this procedure and instead be able to directly analyse the information available.

Despite having a total of 50 answers, it would have had been beneficial to have access to even more data, so that a more reliable analysis could be carried out. If we had, for instance, access to information provided by 200 accelerators, we would be able to reach more trustworthy conclusions.

8.3 Recommendations for future research

This research work provides a generalist portrait of accelerators worldwide, with regards to their current and future trends. Different aspects of an accelerator's business model are analysed, but it would be helpful to have a more detailed analysis of each one. Therefore, it would be very interesting to further analyse topics such as the value that entrepreneurs get when they join an acceleration program, or the strategic reasons that accelerators may have to run different types of programs. Moreover, this suggestion could be extended to a more detailed analysis of an accelerator's funding model or a study with particular regards to the international presence of an organization. To sum up, if another researcher could further investigate each of the topics that is analysed in this dissertation, the community would benefit a lot from it.

I would also suggest that further research works are conducted with more data available, so that there is no need to group the observations in different ways. If we are able to analyse the data considering the exact information that was collected, the analysis is more robust and we are able to explore even more details. Other analysis may as well be conducted, such as the Cluster Analysis, the Discriminant Analysis and the Linear Regression Analysis. Cluster analysis is the task of grouping a set of objects in such a way that objects in the same cluster are more similar to each other than to those in other groups. The Discriminant analysis is a method of predicting some level of a one-way classification based on known values of the responses. Finally, the Linear Regression Analysis is an approach for modeling the relationship between a scalar dependent variable and one or more explanatory variables (or independent variables).

Furthermore, I would suggest the application of the Delphi method. This method is a structured communication technique, originally developed as a systematic, interactive forecasting method which

relies on a panel of experts. It would be very helpful to collect the opinion of a panel of experts on the subject, in order validate previous ideas and conclusions that were reached through the analysis of the survey and the Case Studies.

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I. Appendix I – Research Survey

Startup Accelerators: analysis of current & future trends

Hello,
We need your help regarding a research that is being conducted amongst startup accelerators across the world.

This survey has been developed by Nova University of Lisbon in collaboration with NESTA and its main purpose is to analyse the current & future trends amongst accelerators in different countries. The data you introduce is anonymous, but you have the chance to identify yourself, if you want to.
There are four parts in the questionnaire:

- Introduction
- Generic acceleration
- Vertical acceleration
- Pre-acceleration
- Future of acceleration

If you have just one of these, just do the Introduction, the accelerator type you organize and the Future. It takes no longer than 8 minutes to complete. Results will be published in a White Paper for the European Commission, presented at the Startup Europe Summit in Berlin, June 2016.

We would sincerely appreciate if you could participate in this research.

Introduction

In this part of the survey, there are some generic questions regarding your organization.

*** 1. Your organization is based in...?**

Answer options: List of countries

2. What is the number of people working full time at your organization? Choose one answer.

- Less than 10
- Less than 50
- Less than 250
- More than 250

3. Which of the following categories best describes your organization? Choose one answer.

- Private sector, privately held
- Private sector, publicly traded
- Non-profit (educational, charitable, etc)
- Public sector

*** 4. In 2015, did your organization run acceleration program(s) in more than one country? Choose one answer.**

- Yes
- No

5. In 2015, approximately what percentage of startups in your program(s) were not from the country where the accelerator program was taking place?

Open answer

*** 6. In 2015, did any of your acceleration programs take equity? Choose one answer.**

- Yes
- No

7. What was the typical amount of equity taken by your accelerator in 2015?

Open answer

*** 8. Which of the following metrics do you use to evaluate your programs? Choose one or more answers.**

- Number of applications
- Survival rate of startups going through the program(s)
- Total market capitalization of startups having gone through the program(s)
- Number and total value of exits
- Total number of graduates since program inception
- Number of startups valued over a certain amount
- Partnerships created
- KPIs related to the impact in the ecosystem
- Other (please specify)

*** 9. In 2015, did your organization run any generic acceleration program? Generic acceleration refers to programs that don't have a specific industry focus regarding the startups joining them. Choose one answer**.

- Yes
- No

Generic acceleration

10. In 2015, how many startups went through your generic acceleration program(s)?

Open answer

11. What strategic reasons did your organization have to run generic acceleration program(s)? Choose one classification for each option.

	Not important	Somehow important	Important	Very important	Extremely important	N/A
Acceleration is our core						

Identify good investment opportunities for our portfolio						
Identify good investment opportunities for our clients						
Help transfer technology into business						
Support growth of the ecosystem						
Promote internal cultural change						

Other (please specify)

12. What value do entrepreneurs get out of your generic program(s)? Choose one classification for each option.

	Not valuable	Somewhat valuable	Valuable	Very valuable	Extremely valuable	N/A
Learn new tools and methodologies to help structure and develop their business ideas						
Learn tools and strategies to help scale-up their business						
Discuss their business challenges with experienced mentors						
Network extensively						
Increase chances to raise money/access funds						
Have access to a working space						

Prepared to face difficulties or barriers along the way						
Benefit from accountability (encouraged to report progress to mentors/staff)						

Other (please specify)

13. What value stakeholders get out of collaborating with your accelerator program(s) (eg. investment opportunities, access to innovation…)?

Open answer for each one

- Mentors
- Corporates
- Investors
- Universities
- Others

14. How does your organization fund the generic program(s)? Choose one or more answers.

- Public grants
- Private sponsorship
- Commissioned to a client
- Own budget
- Other (please specify)

15. What were the most popular industries amongst startups that were in your generic accelerator in 2015? Choose one or more answers.

- Agriculture & Farm
- Airline industry
- Analytics
- Biotechnology
- Business & Productivity

- Chemistry & Farma
- Cloud Computing
- Construction
- Creative industries
- Education
- Electronics
- Energy & Clean tech
- Entertainment & Leisure
- Fashion
- Finance (Banking and Fintech)
- Food, Beverages & Tobacco
- Health & Healthcare
- Insurance
- Legal services
- Marketing & Advertising
- Pets
- Real Estate
- Retail & Distribution
- Sports
- Telecommunications
- Tourism
- Transportation
- Other (please specify)

*** 16. In 2015, did your organization run any vertical acceleration program? Choose one answer.**

- Yes
- No

Vertical acceleration

A vertical accelerator is usually focused on a specific industry (e.g.: fintech, healthcare, insurance, and others).

17. In 2015, how many startups went through your vertical acceleration program(s)?

Open answer

18. What strategic reasons did your organization have to run vertical acceleration program(s)? Choose one classification for each option.

	Not important	Somehow important	Important	Very important	Extremely important	N/A
Identify investment opportunities for our portfolio						
Identify investment opportunities for our clients						
Startups benefit more from vertical acceleration						
Easier to fund a vertical accelerator than a generic one						
Easier to do & promote a vertical acceleration than a generic one						
Verticalization is the next big trend in the market						
A certain sector (fintech, healthcare, etc) will become very popular						
Verticalization was a way to differentiate ourselves						

Promoting internal cultural change						

Other (please specify)

19. What value do entrepreneurs get out of your vertical program(s)? Choose one classification for each option.

	Not valuable	Somewhat valuable	Valuable	Very valuable	Extremely valuable	N/A
Learn new tools and methodologies to help structure and develop their business ideas						
Learn tools and strategies to help scale-up their business						
Discuss their business challenges with experienced mentors						
Network extensively						
Increase chances to raise money/access funds						
Have access to a working space						
Prepared to face difficulties or barriers along the way						
Benefit from accountability (entrepreneurs encouraged to report progress to mentors/staff)						

20. What value stakeholders get out of collaborating with your accelerator program(s) (eg. investment opportunities, access to innovation…)?

Open answer for each one

- Mentors
- Corporates
- Investors
- Universities
- Others

21. How does your organization fund the vertical program(s)?

Choose one or more answers

- Public grants
- Private sponsorship
- Commissioned to a client
- Own budget
- Other (please specify)

22. Which industry is the vertical accelerator(s) focused on?

Choose one or more answers

- Agriculture & Farm
- Airline industry
- Analytics
- Biotechnology
- Business & Productivity
- Chemistry & Farma
- Cloud Computing
- Construction
- Creative industries
- Education
- Electronics
- Energy & Clean tech
- Entertainment & Leisure
- Fashion
- Finance (Banking and Fintech)
- Food, Beverages & Tobacco
- Health & Healthcare

- Insurance
- Legal services
- Marketing & Advertising
- Pets
- Real Estate
- Retail & Distribution
- Sports
- Telecommunications
- Tourism
- Transportation
- Other (please specify)

*** 23. In 2015, did your organization run any pre-acceleration program? Choose one answer.**

- Yes
- No

Pre-acceleration

24. In 2015, how many startups went through your pre-acceleration program(s)?

Open answer

25. What strategic reasons did your organization have to run pre-acceleration program(s)? Choose one classification for each option.

	Not important	Somehow important	Important	Very important	Extremely important	N/A
Changing peoples' mindset						
Creating entrepreneurial culture						
Increasing startups in the ecosystem						

Increasing entrepreneurs in the ecosystem						
Fulfil demand to help structure/develop initial business ideas						
Create quality pipeline for accelerators						

Other (please specify)

26. What value do you think entrepreneurs get out of your pre-acceleration program(s)? Choose one classification for each option.

	Not valuable	Somewhat valuable	Valuable	Very valuable	Extremely valuable	N/A
Learn new tools and methodologies to help structure and develop their business ideas						
Discuss business ideas and challenges with experienced mentors						
Network extensively						
Increase chances to raise money/access funds						
Have access to a working space						
Prepared to face difficulties or barriers along the way						
Benefit from accountability (entrepreneurs encouraged to report progress to mentors/staff)						

Learn tools and strategies to help scale-up their business						
Have an opportunity to focus in developing own ideas						

Other (please specify)

27. What value stakeholders get out of collaborating with your accelerator program(s) (eg. investment opportunities, access to innovation…)?

Open answer for each one

- Mentors
- Corporates
- Investors
- Universities
- Others

28. How does your organization fund the pre-acceleration program(s)? Choose one or more answers.

- Public grants
- Private sponsorship
- Commissioned to a client
- Own budget
- Other (please specify)

Future of acceleration

Questions on the future of your organization and future challenges.

29. Considering your acceleration program(s), rank priorities for 2016? (1 is top priority) Give each option a classification and don't repeat this classification for other options.

Options: 1, 2, 3, 4, 5, 6, 7, N/A

- Expand accelerator program(s) to other locations (internationally)
- Expand accelerator program(s) to other locations (same country)
- Develop and implement different models of acceleration from existing ones
- Making processes more efficient
- Improving quality of our acceleration program(s)
- Make accelerator more international (scout international mentors/startups)
- Improve network of mentors

*** 30. Considering the future of your organization & accelerator, indicate importance of challenges listed below. Choose one classification for each option.**

	Not important	Somehow important	Important	Very important	Extremely important	N/A
Measure value delivered						
Build credibility						
Create global network to help startups go global						
Attract quality startups						
Attract quality mentors						
Attract funding for startups						
Optimize internal processes						
Increase competition in acceleration industry						
Financial sustainability of acceleration business model						

31. Approximately, how many startups do you think will go through your pre-acceleration program(s) in 2016?

Open answer

32. Approximately, how many startups do you think will go through your generic program(s) in 2016?

Open answer

33. Approximately, how many startups do you think will go through your vertical program(s) in 2016?

Open answer

*** 34. Do you think your accelerator will take equity in 2016? Choose one answer.**

- Yes
- No

35. What will be the typical amount of equity taken by your accelerator in 2016?

Open answer

*** 36. Does your organization plan to do acquisitions or mergers of other accelerators? Choose one answer.**

- No
- Yes – Acquisitions
- Yes – Mergers
- Yes - Acquisitions & Mergers

37. Which organization are you part of? (Optional question)

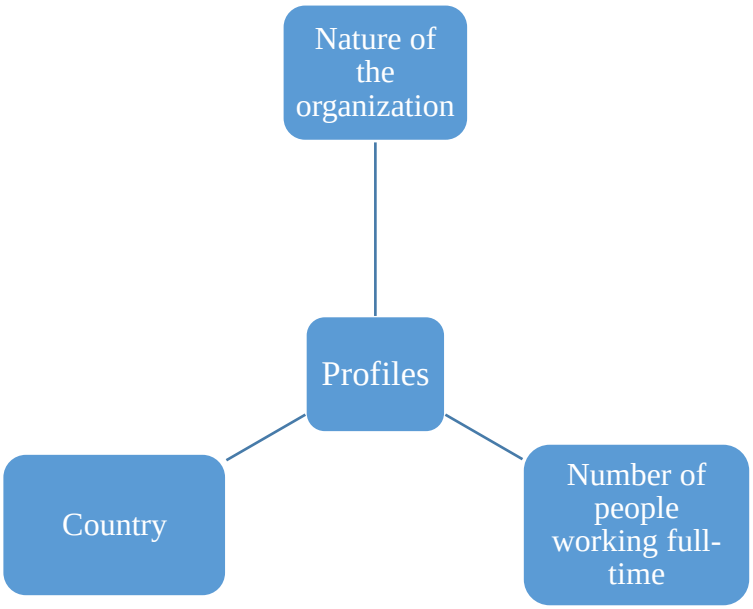
Open answer

38. Any additional comments?

Open answer

II. Appendix II – Quantitative analysis per profile, based on descriptive statistics

Figure II.1 - Profiles



II.1 Profiling: Nature of the organization

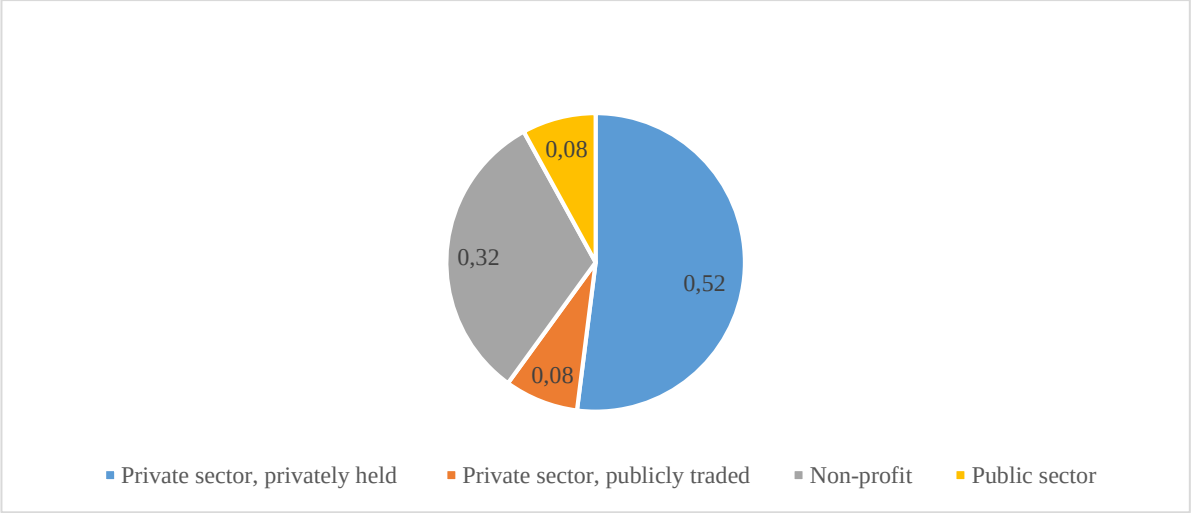
Considering the nature of the organizations, accelerators may be part of different sectors:

- Private sector, privately held;
- Private sector, publicly traded;
- Non-profit sector;
- Public sector.

II.1.1. Profiling information (*Sample size: 50 answers*)

26 organizations amongst 50 are part of the private sector and are privately held, 16 organizations amongst 50 are part of the non-profit sector, 4 organizations amongst 50 are part of the private sector and are publicly traded and 4 organizations amongst 50 that are part of the public sector. Therefore, 52% of organizations are part of the private sector and are privately held, 32% of organizations are part of the non-profit sector, 8% of organizations are part of the private sector and are publicly traded and 8% of organizations are part of the public sector. Figure II.2 illustrates these results.

Figure II.2 – Percentage of organizations that are part of each sector



II.1.2. Acceleration in more than one country *(Sample size: 50 answers)*

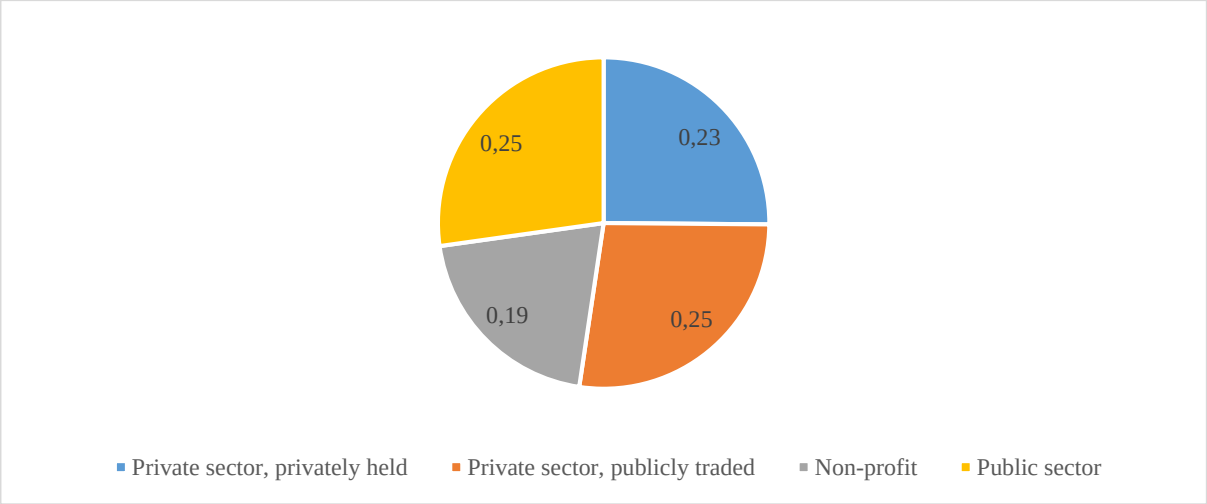
Table II.1 – Sample size per nature of organization for 'Acceleration in more than one country'

	Number of organizations
Private sector, privately held	26
Private sector, publicly traded	4
Non-profit	16
Public sector	4
Total	**50**

There are 6 organizations that are part of the private sector and are privately held, amongst 26 organizations of that sector, that run acceleration program(s) in more than one country. There is 1 organization that is part of the private sector and is publicly traded amongst 4 organizations of that sector that run acceleration program(s) in more than one country. There are 3 organizations that are part of the non-profit sector amongst 16 organizations of that sector that run acceleration program(s) in more than one country. There is 1 organization in the public sector amongst 4 in that sector that run acceleration program(s) in more than one country.

Therefore, 23% of organizations in the private sector that are privately held run acceleration program(s) in more than one country, 25% of organizations in the private sector that are publicly traded run acceleration program(s) in more than one country, 19% of organizations in the non-profit sector run acceleration program(s) in more than one country and 25% of organizations in the public sector run acceleration program(s) in more than one country. Figure II.3 graphically represents these results.

Figure II.3 - Percentage of organizations that run acceleration program(s) in more than one country per type of organization



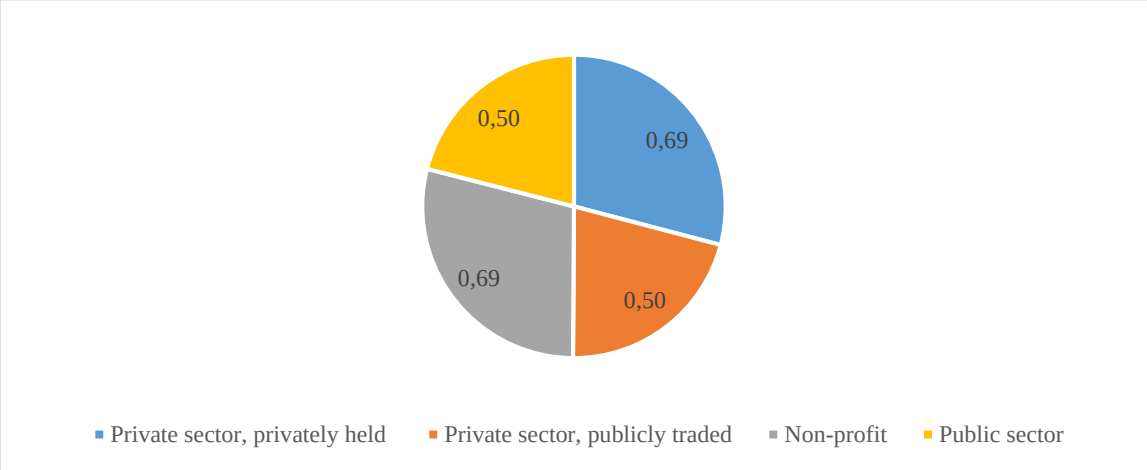
II.1.3 Generic acceleration

Table II.2 – Sample size per nature of organization for 'Generic Acceleration'

	Generic Acceleration Number of organizations
Private sector, privately held	26
Private sector, publicly traded	4
Non-profit	16
Public sector	4
Total	**50**

69% of organizations in the private sector, that are privately held run generic acceleration, 50% of organizations in the private sector, that are publicly traded run generic acceleration, 69% of organizations in the non-profit sector run generic acceleration and 50% of organizations in the public sector run generic acceleration. Figure II.4 illustrates these results.

Figure II.4 – Percentage of organizations that run generic acceleration per type of organization



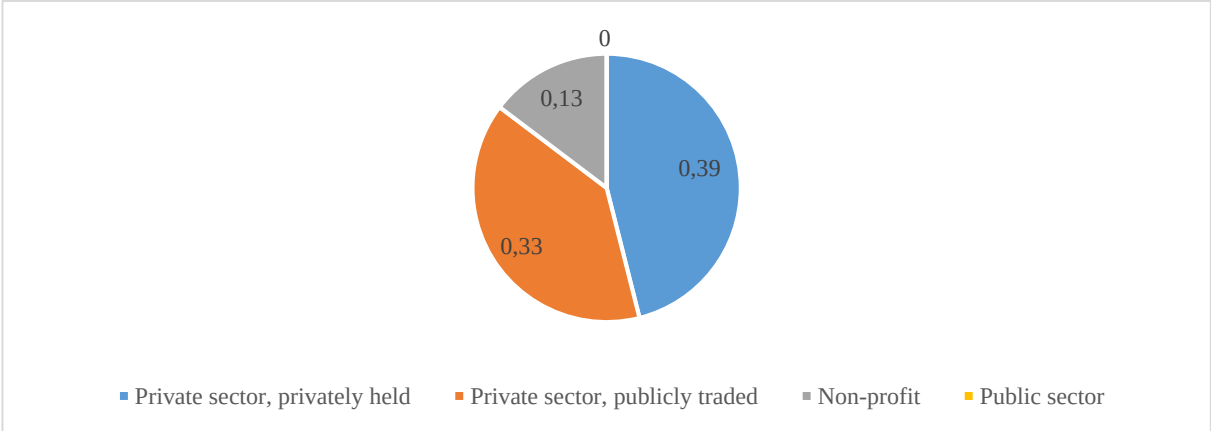
II.1.4 Vertical Acceleration

Table II.3 – Sample size per nature of organization for 'Vertical Acceleration'

	Vertical Acceleration Number of organizations
Private sector, privately held	23
Private sector, publicly traded	3
Non-profit	16
Public sector	4
Total	**46**

39% of organizations in the private sector, that are privately held run vertical acceleration, 33% of organizations in the private sector that are publicly traded run vertical acceleration and 13% of organizations in the non-profit sector run vertical acceleration. The public sector does not run vertical acceleration. Organizations in the private sector are the ones that actually invest more in running vertical acceleration. Figure II.5 illustrates these results.

Figure II.5 – Percentage of organizations that run vertical acceleration per type of organization



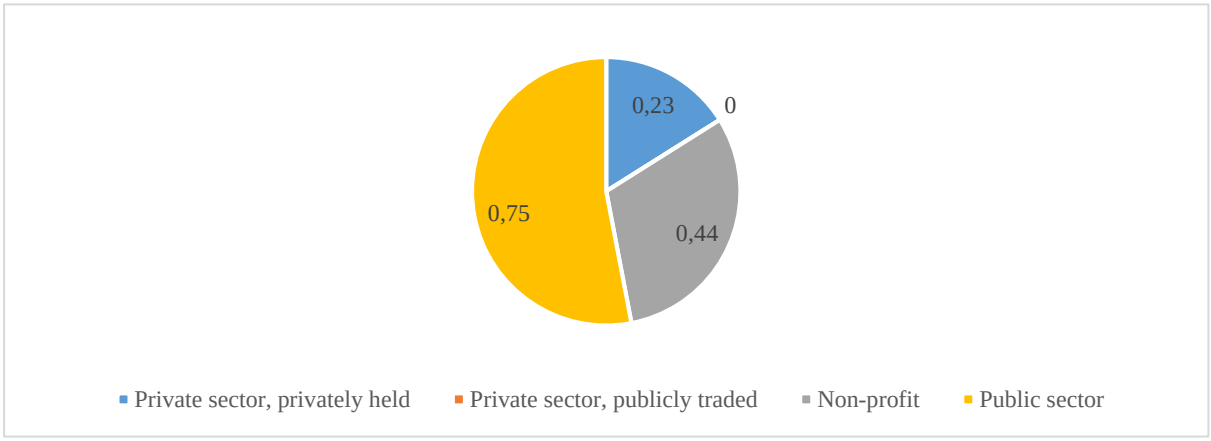
II.1.5 Pre-acceleration

Table II.4 – Sample size per nature of organization for 'Pre-acceleration'

	Pre-acceleration Number of organizations
Private sector, privately held	22
Private sector, publicly traded	2
Non-profit	16
Public sector	4
Total	**44**

75% of organizations in the public sector run pre-acceleration, 23% of organizations in the private sector, that are privately held run pre-acceleration and 44% of organizations in the non-profit sector run pre-acceleration. The organizations in the private sector, that are publicly traded do not run pre-acceleration. Organizations in the public sector are the ones that actually invest more in running pre-acceleration. Figure II.6 represents these results.

Figure II.6 – Percentage of organizations that run pre-acceleration per type of organization



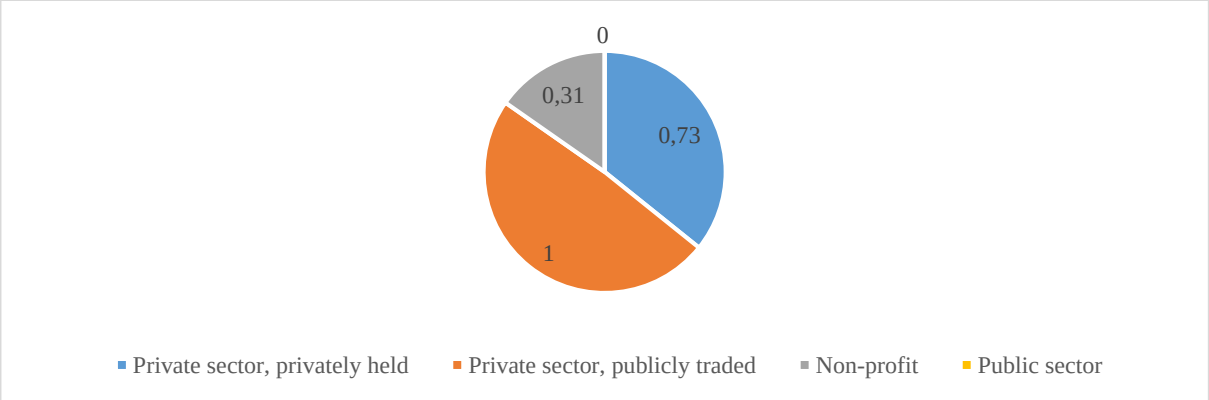
II.1.6 Equity in 2015

Table II.5 – Sample size per nature of organization for 'Equity in 2015'

	Equity in 2015 Number of organizations
Private sector, privately held	26
Private sector, publicly traded	4
Non-profit	16
Public sector	4
Total	**50**

73% of organizations in the private sector, that are privately held took equity in 2015, 100% of organizations in the private sector, that are publicly traded took equity in 2015 and 31% of organizations in the non-profit sector took equity in 2015. The organizations that are part of the public sector did not take equity in 2015. Figure II.7 illustrates these results.

Figure II.7 - Percentage of organizations that took equity in 2015 per type of organization



II.1.7 Value that entrepreneurs get out of generic programs

II.1.7.1 Private sector, privately held organizations *(Sample size: 12 answers)*

- **'Learn new tools and methodologies to help structure and develop their business ideas'**

On average, organizations in the private sector that are privately held considered that 'Learn new tools and methodologies to help structure and develop their business ideas' was valuable/very valuable for the entrepreneur who is part of the generic programs. The most common classification was 4, which means that the most common classification was very valuable. Table II.6 represents the main results.

Table II.6 – Descriptive statistics on 'Learn new tools and methodologies to help structure and develop their business ideas'

	Learn new tools and methodologies to help structure and develop their business ideas
Average	3,83
Standard deviation	0,83
Mode	4
Median	4
Maximum	5
Minimum	2
Kurtosis	1,15

- **‘Learn tools and strategies to help scale-up their business’**

On average, organizations in the private sector that are privately held considered that ‘Learn tools and strategies to help scale-up their business’ was very valuable for the entrepreneur who is part of the generic programs. The most common classification was 4, which means that the most common classification was very valuable. Table II.7 represents the main results.

Table II.7 – Descriptive statistics on “Learn tools and strategies to help scale-up their business”

	Learn tools and strategies to help scale-up their business
Average	4,25
Standard deviation	0,75
Mode	4
Median	4
Maximum	5
Minimum	3
Kurtosis	-0,87

- **‘Discuss their business challenges with experienced mentors’**

On average, organizations in the private sector that are privately held considered that ‘Discuss their business challenges with experienced mentors’ was very valuable for the entrepreneur who is part of the generic programs. The most common classification was 5, which means that the most common classification was extremely valuable. Table II.8 represents the main results.

Table II.8 – Descriptive statistics on ‘Discuss their business challenges with experienced mentors’

	Discuss their business challenges with experienced mentors
Average	4,17
Standard deviation	0,83
Mode	5
Median	4
Maximum	5
Minimum	3
Kurtosis	-1,45

- **‘Network extensively’**

On average, organizations in the private sector that are privately held considered that ‘Network extensively’ was very valuable for the entrepreneur who is part of the generic programs. The most

common classification was 3, which means that the most common classification was valuable. Table II.9 represents the main results.

Table II.9 – Descriptive statistics on "Network extensively"

	Network extensively
Average	4,00
Standard deviation	0,85
Mode	3
Median	4
Maximum	5
Minimum	3
Kurtosis	-1,65

- **'Increase chances to raise money/access funds'**

On average, organizations in the private sector that are privately held considered that 'Increase chances to raise money/access funds' was very valuable for the entrepreneur who is part of the generic programs. The most common classification was 5, which means that the most common classification was extremely valuable. Table II.10 represents the main results.

Table II.10 – Descriptive statistics on 'Increase chances to raise money/access funds'

	Increase chances to raise money/access funds
Average	4,33
Standard deviation	0,89
Mode	5
Median	4,5
Maximum	5
Minimum	2
Kurtosis	3,81

- **'Having access to a working space'**

On average, organizations in the private sector that are privately held considered that 'Having access to a working space' was valuable for the entrepreneur who is part of the generic programs. The most common classification was 4, which means that the most common classification was very valuable. Table II.11 represents the main results.

Table II.11 – Descriptive statistics on 'Having access to a working space'

	Having access to a working space
Average	3,25
Standard deviation	1,36
Mode	4
Median	3,5
Maximum	5
Minimum	1
Kurtosis	-0,6

- **'Prepared to face difficulties or barriers along the way'**

On average, organizations in the private sector that are privately held considered that 'Prepared to face difficulties or barriers along the way' was valuable/very valuable for the entrepreneur who is part of the generic programs. The most common classification was 5, which means that the most common classification was extremely valuable. Table II.12 represents these results.

Table II.12 – Descriptive statistics on 'Prepared to face difficulties or barriers along the way'

	Prepared to face difficulties or barriers along the way
Average	3,75
Standard deviation	1,14
Mode	5
Median	4
Maximum	5
Minimum	2
Kurtosis	-1,26

- **'Benefit from accountability (encouraged to report progress to mentors/staff)'**

On average, organizations in the private sector that are privately held considered that 'Benefit from accountability (encouraged to report progress to mentors/staff)' was valuable/very valuable for the entrepreneur who is part of the generic programs. The most common classification was 5, which means that the most common classification was extremely valuable. Table II.13 represents the main conclusions.

Table II.13 – Descriptive statistics on 'Benefit from accountability (encouraged to report progress to mentors/staff)'

	Benefit from accountability (encouraged to report progress to mentors/staff)
Average	3,58
Standard deviation	1,24
Mode	5
Median	3,5
Maximum	5
Minimum	2
Kurtosis	-1,68

II.1.7.2 Private sector, publicly traded organizations *(Sample size: 1 answer)*

It is not relevant to analyse this topic due to the lack of answers

II.1.7.3 Non-profit (*Sample size: 8 answers*)

- **'Learn new tools and methodologies to help structure and develop their business ideas'**

On average, organizations in the non-profit sector considered that 'Learn new tools and methodologies to help structure and develop their business ideas' was very valuable for the entrepreneur who is part of the generic programs. The most common classification was 5, which means that the most common classification was extremely valuable. Table II.14 represents the main conclusions.

Table II.14 – Descriptive statistics on 'Learn new tools and methodologies to help structure and develop their business ideas'

	Learn new tools and methodologies to help structure and develop their business ideas
Average	4,38
Standard deviation	0,74
Mode	5
Median	4,5
Maximum	5
Minimum	3
Kurtosis	-0,15

- **'Learn tools and strategies to help scale-up their business'**

On average, organizations in the non-profit sector considered that 'Learn tools and strategies to help scale-up their business' was very valuable for the entrepreneur who is part of the generic programs. The most common classification was 4, which means that the most common classification was very valuable. Table II.15 represents the main conclusions.

Table II.15 – Descriptive statistics on 'Learn tools and strategies to help scale-up their business'

	Learn tools and strategies to help scale-up their business
Average	4,00
Standard deviation	0,53
Mode	4
Median	4
Maximum	5
Minimum	3
Kurtosis	3,50

- **'Discuss their business challenges with experienced mentors'**

On average, organizations in the non-profit sector considered that 'Discuss their business challenges with experienced mentors' was very valuable for the entrepreneur who is part of the generic programs. The most common classification was 4, which means that the most common classification was very valuable. Table II.16 represents the main conclusions.

Table II.16 – Descriptive statistics on 'Discuss their business challenges with experienced mentors'

	Discuss their business challenges with experienced mentors
Average	4,38
Standard deviation	0,52
Mode	4
Median	4
Maximum	5
Minimum	4
Kurtosis	-2,24

- **‘Network extensively’**

On average, organizations in the non-profit sector considered that ‘Network extensively’ was very valuable for the entrepreneur who is part of the generic programs. The most common classification was 5, which means that the most common classification was extremely valuable. Table II.17 represents the main conclusions.

Table II.17 – Descriptive statistics on ‘Network extensively’

	Network extensively
Average	4,25
Standard deviation	0,89
Mode	5
Median	4,5
Maximum	5
Minimum	3
Kurtosis	-1,48

- **‘Increase chances to raise money/access funds’**

On average, organizations in the non-profit sector considered that ‘Increase chances to raise money/access funds’ was valuable/very valuable for the entrepreneur who is part of the generic programs. The most common classification was 4, which means that the most common classification was very valuable. Table II.18 represents the main conclusions.

Table II.18 – Descriptive statistics on ‘Increase chances to raise money/access funds’

	Increase chances to raise money/access funds
Average	3,63
Standard deviation	0,92
Mode	4
Median	4
Maximum	5
Minimum	2
Kurtosis	0,42

- **‘Having access to a working space’**

On average, organizations in the non-profit sector considered that ‘Having access to a working space’ was valuable/very valuable for the entrepreneur who is part of the generic programs. The most common classification was 4, which means that the most common classification was very valuable. Table II.19 represents the main conclusions.

Table II.19 – Descriptive statistics on ‘Having access to a working space’

	Having access to a working space
Average	3,88
Standard deviation	1,25
Mode	4
Median	4
Maximum	5
Minimum	1
Kurtosis	5,26

- **‘Prepared to face difficulties or barriers along the way’**

On average, organizations in the non-profit sector considered that ‘Prepared to face difficulties or barriers along the way’ was valuable/very valuable for the entrepreneur who is part of the generic programs. The most common classification was 3, which means that the most common classification was valuable. Table II.20 illustrates the main results.

Table II.20 – Descriptive statistics on ‘Prepared to face difficulties or barriers along the way’

	Prepared to face difficulties or barriers along the way
Average	3,63
Standard deviation	0,74
Mode	3
Median	3,5
Maximum	5
Minimum	3
Kurtosis	-0,15

- **'Benefit from accountability (encouraged to report progress to mentors/staff)'**

On average, organizations in the non-profit sector considered that 'Benefit from accountability (encouraged to report progress to mentors/staff)' was very valuable for the entrepreneur who is part of the generic programs. The most common classification was 4, which means that the most common classification was very valuable. Table II.21 illustrates the main results.

Table II.21 – Descriptive statistics on 'Benefit from accountability (encouraged to report progress to mentors/staff)'

	Benefit from accountability (encouraged to report progress to mentors/staff)
Average	4,25
Standard deviation	0,46
Mode	4
Median	4
Maximum	5
Minimum	4
Kurtosis	0,00

II.1.7.4 Public sector *(Sample size: 2 answers)*

It is not relevant to analyse this topic due to the lack of answers

II.1.7.5 Comparison regarding the value that entrepreneurs get out of generic programs between non-profit and private sector, privately held organizations

Table II.22 – Average classification that the private sector, privately held organizations and the public-sector have for each option

	Private sector, privately held	**Non-profit**
Learn new tools and methodologies to help structure and develop their business ideas	3,83	4,38
Learn tools and strategies to help scale-up their business	4,25	4

Discuss their business challenges with experienced mentors	4,17	4,38
Network extensively	4,00	4,25
Increase chances to raise money/access funds	4,33	3,63
Have access to a working space	3,25	3,88
Prepared to face difficulties or barriers along the way	3,75	3,63
Benefit from accountability (encouraged to report progress to mentors/staff)	3,58	4,25

II.1.8 Popular industries amongst startups in the generic programs in 2015

II.1.8.1 Private sector, privately held organizations *(Sample size: 12 answers)*

The most popular industries amongst startups in the generic programs are: Business & Productivity, Creative industries, Education, Entertainment & Leisure, Finance (Banking and Fintech), Marketing & Advertising and Tourism. Table II.23 represents the number of organizations that are part of the private sector and are privately held that have each option as a popular industry in the generic program. The green shading indicates the most popular ones.

Table II.23 – Number of organizations that are part of the private sector and are privately held that have each option as a popular industry in the generic program

	Number of organizations that are part of the private sector and are privately held that have each option as a popular industry in the generic program
Agriculture & Farm	0
Airline industry	0
Analytics	1
Biotechnology	2
Business & Productivity	7
Chemistry & Farma	1
Cloud Computing	2
Construction	1
Creative industries	4
Education	4
Electronics	1

Energy & Clean tech	3
Entertainment & Leisure	4
Fashion	2
Finance (Banking and Fintech)	5
Food, Beverages & Tobacco	1
Health & Healthcare	2
Insurance	0
Legal services	0
Marketing & Advertising	4
Pets	0
Real Estate	3
Retail & Distribution	1
Sports	0
Telecommunications	0
Tourism	4
Transportation	1

II.1.8.2 Private sector, publicly traded (*Sample size: 1 answer*)

It is not relevant to analyse this topic due to the lack of answers

I.1.8.3 Non-profit (*Sample size: 11 answers*)

The most popular industries amongst startups in the generic programs regarding the non-profit organizations are: Analytics, Business & Productivity, Education, Energy & Clean tech, Marketing & Advertising and Retail & Distribution. Table II.24 represents the number of organizations that are part of the non-profit sector that have each option as a popular industry in the generic program. The green shading indicates the most popular ones.

Table II.24 – Number of organizations that are part of the non-profit sector that have each option as a popular industry in the generic program

	Number of organizations in the non-profit sector that have each option as a popular industry in the generic program
Agriculture & Farm	2
Airline industry	1
Analytics	4
Biotechnology	0
Business & Productivity	4
Chemistry & Farma	0
Cloud Computing	3
Construction	0
Creative industries	2
Education	4
Electronics	2
Energy & Clean tech	4
Entertainment & Leisure	2
Fashion	1
Finance (Banking and Fintech)	3
Food, Beverages & Tobacco	2
Health & Healthcare	3
Insurance	0
Legal services	0
Marketing & Advertising	5
Pets	0
Real Estate	2
Retail & Distribution	5
Sports	2
Telecommunications	2
Tourism	2
Transportation	0

II.1.8.4 Public sector *(Sample size: 1 answer)*

It is not relevant to analyse this topic due to the lack of answers

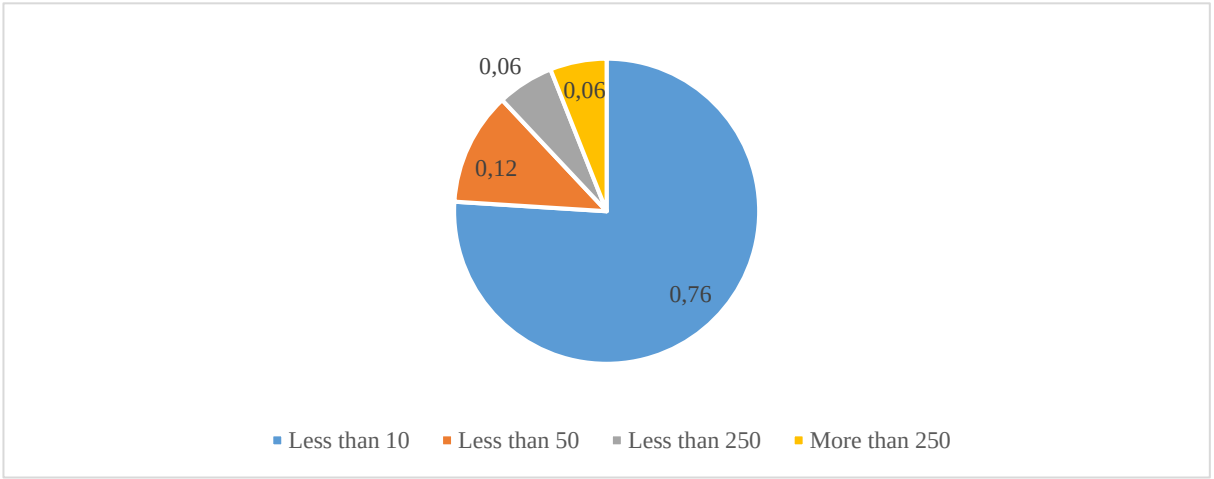
II.2 Profiling: Number of people working full time at the organization

The categories of number of people working full time at the organization that were created for this research work were: Less than 10, Less than 50, Less than 250 and More than 250.

II.2.1 Profiling information (*Sample size: 50 answers*)

38 organizations have less than 10 people working full time at the organization amongst 50 organizations, 6 organizations have less than 50 people working full time amongst 50 organizations, 3 organizations have less than 250 people working full time amongst 50 organizations and 3 organizations have more than 250 people working full time amongst 50 organizations. Therefore, 76% of organizations have less than 10 people working full time, 12% of organizations have less than 50 people working full time, 6% of organizations have less than 250 people working full time and 6% of organizations have more than 250 people working full time. Figure II.8 illustrates these results.

Figure II.8 – Percentage of organizations that have each of the following options as the number of people working full time



II.2.2 Acceleration program(s) in more than one country (*Sample size: 50 answers*)

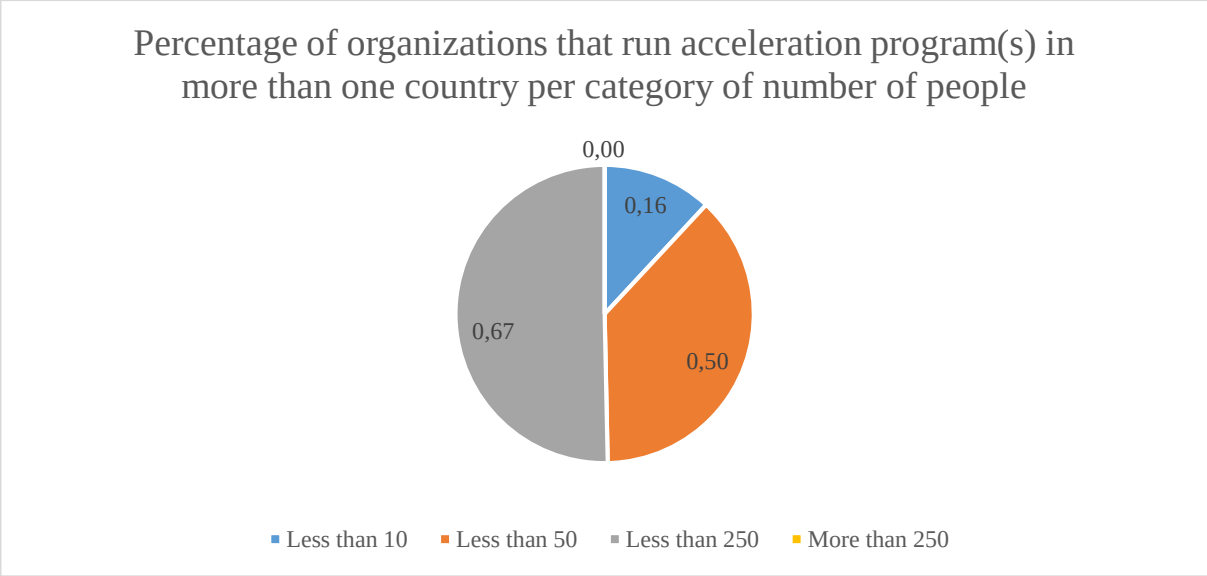
Table II.25 – Sample size for acceleration program(s) in more than one country

	Acceleration in more than one country **Number of organizations**
Less than 10	38
Less than 50	6
Less than 250	3
More than 250	3
Total	**50**

There are 6 organizations that have less than 10 people working full time that run acceleration program(s) in more than one country, considering a total of 38 organizations that have less than 10 people working full time, there are 3 organizations that have less than 50 people working full time that run acceleration program(s) in more than one country, considering a total of 6 organizations that have less than 50 people working full time and there are 2 organizations that have less than 250 people working full time that run acceleration program(s) in more than one country, considering a total of 3 organizations that have less than 250 people working full time. The 3 organizations that have more than 250 people working full time do not run acceleration program(s) in more than one country.

Therefore, 16% of organizations that have less than 10 people working full time run acceleration program(s) in more than one country, 50% of organizations that have less than 50 people working full time run acceleration program(s) in more than one country, 67% of organizations that have less than 250 people working full time run acceleration program(s) in more than one country and 0% of organizations that have more than 250 people working full time run acceleration program(s) in more than one country. Figure II.9 illustrates these results.

Figure II.9 – Percentage of organizations that run acceleration program(s) in more than one country per category of number of people



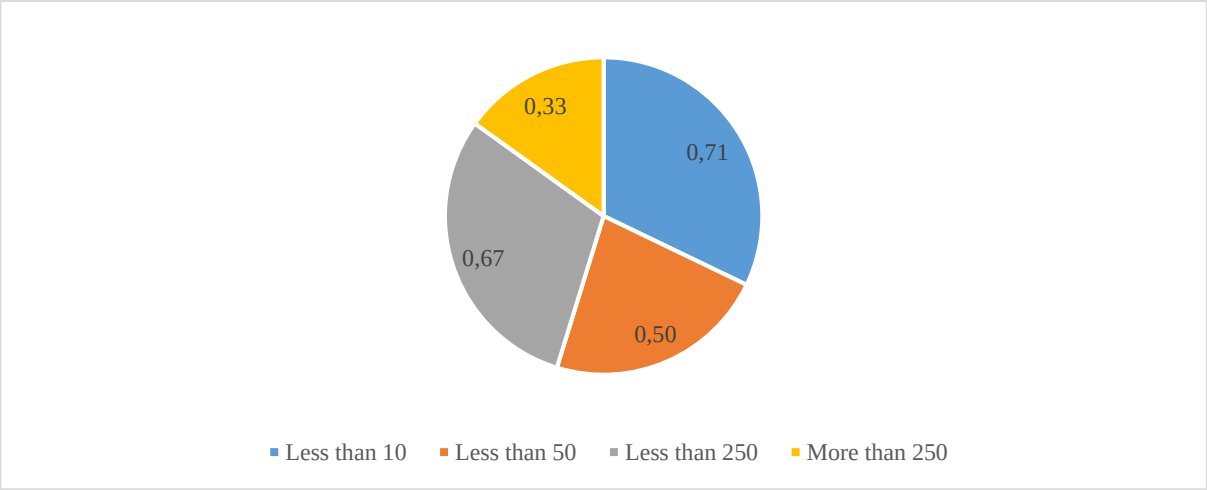
II.2.3 Generic acceleration *(Sample size: 50 answers)*

Table II.26 – Sample size for generic acceleration

	Generic acceleration **Number of organizations**
Less than 10	38
Less than 50	6
Less than 250	3
More than 250	3
Total	**50**

71% of organizations that have less than 10 people working full time run generic acceleration, 50% of organizations that have less than 50 people working full time run generic acceleration, 67% of organizations that have less than 250 people working full time run generic acceleration, 33% of organizations that have more than 250 people working full time run generic acceleration. Figure II.10 represents these results.

Figure II.10 – Percentage of organizations that run generic acceleration per category of number of people



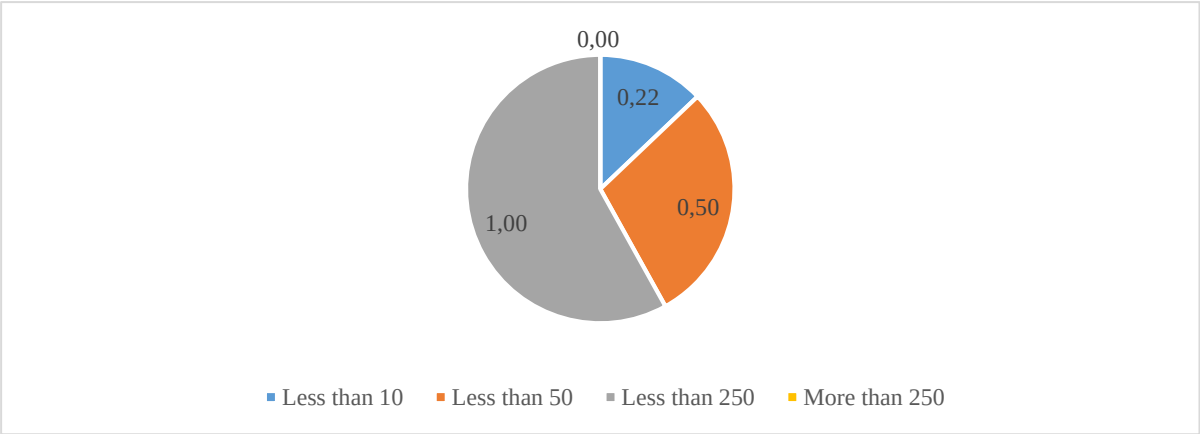
II.2.4. Vertical Acceleration (*Sample size: 46 answers*)

Table II.27 – Sample size for vertical acceleration

	Vertical acceleration **Number of organizations**
Less than 10	36
Less than 50	6
Less than 250	1
More than 250	3
Total	**46**

22% of organizations that have less than 10 people working full time run vertical acceleration, 50% of organizations that have less than 50 people working full time run vertical acceleration, 100% of organizations that have less than 250 people working full time run vertical acceleration and 0% of organizations that have more than 250 people working full time run vertical acceleration. Figure II.11 represents these results.

Figure II.11 - Percentage of organizations that run vertical acceleration per category of number of people



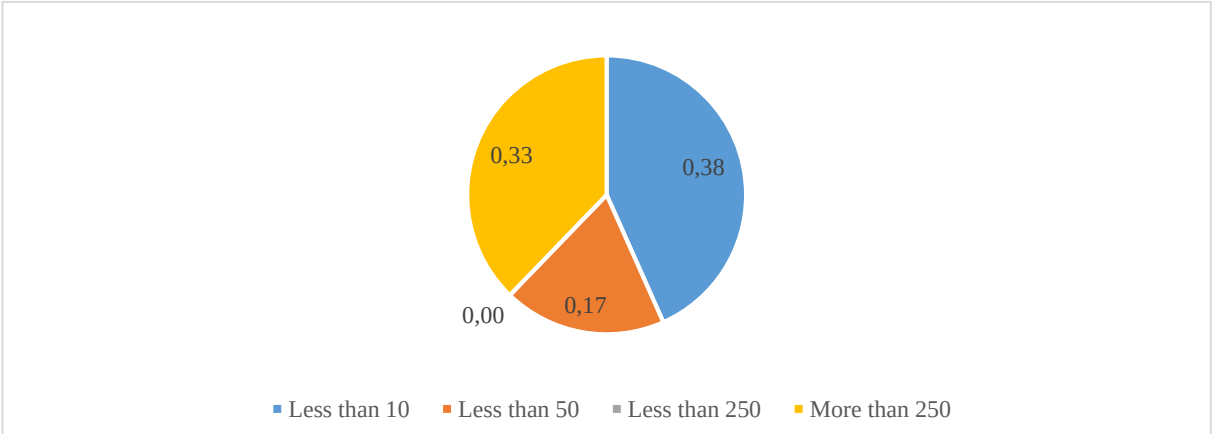
II.2.5 Pre-acceleration (*Sample size: 44 answers*)

Table II.28 – Sample size for pre-acceleration

	Pre-acceleration **Number of organizations**
Less than 10	34
Less than 50	6
Less than 250	1
More than 250	3
Total	**44**

38% of organizations that have less than 10 people working full time run pre-acceleration, 17% of organizations that have less than 50 people working full time run pre-acceleration, 0% of organizations that have less than 250 people working full time run pre-acceleration and 33% of organizations that have more than 250 people working full time run pre-acceleration. Figure II.12 illustrates these results.

Figure II.12 – Percentage of organizations that run pre-acceleration per category of number of people



II.2.6. Equity in 2015 (*Sample size: 50 answers*)

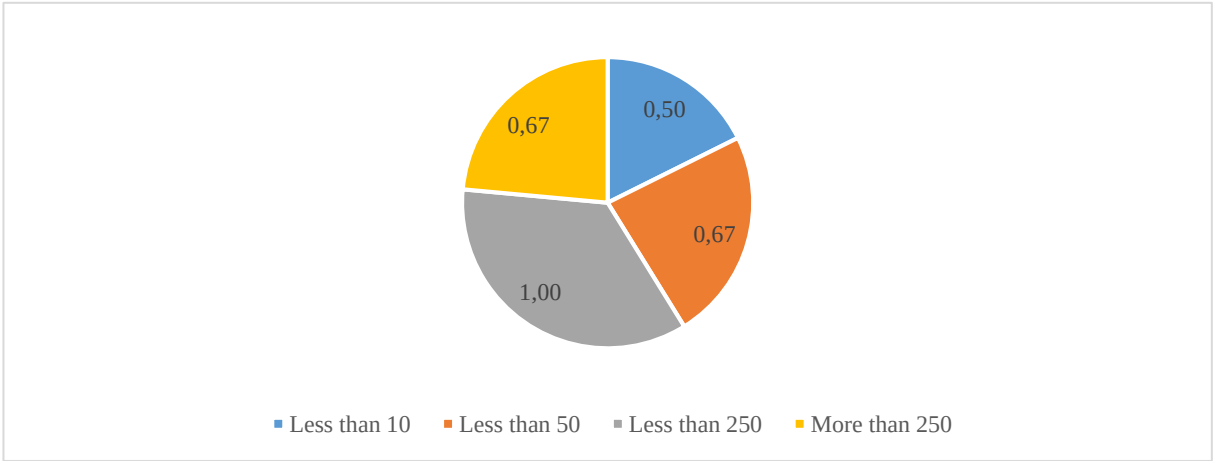
Table II.29 – Sample size for equity in 2015

	Number of organizations
Less than 10	38
Less than 50	6
Less than 250	3
More than 250	3
Total	**50**

Considering the organizations that have less than 10 people working full time, 19 amongst 38 took equity in 2015. Considering the organizations that have less than 50 people working full time, 4 amongst 6 took equity in 2015. Considering the organizations that have less than 250 people working full time, 3 amongst 3 took equity in 2015 and considering the organizations that have more than 250 people working full time, 2 amongst 3 took equity in 2015.

Therefore, 50% of organizations that have less than 10 people working full time took equity in 2015, 67% of organizations that have less than 50 people working full time took equity in 2015, 100% of organizations that have less than 250 people working full time took equity in 2015 and 67% of organizations that have more than 250 people working full time took equity in 2015. Figure II.13 illustrates these results.

Figure II.13 - Percentage of organizations that took equity in 2015 per category of number of people



II.2.7 Value that entrepreneurs get out of generic programs

II.2.7.1 Less than 10 people working full time *(Sample size: 20 answers)*

- **'Learn new tools and methodologies to help structure and develop their business ideas'**

On average, organizations that have less than 10 people working full time considered that 'Learn new tools and methodologies to help structure and develop their business ideas' was very valuable for the entrepreneur who is part of the generic programs. The most common classification was 4, which means that the most common classification was very valuable. Table II.30 represents the main conclusions.

Table II.30 – Descriptive statistics on 'Learn new tools and methodologies to help structure and develop their business ideas'

	Learn new tools and methodologies to help structure and develop their business ideas
Average	4,1
Standard deviation	0,85
Mode	4
Median	4
Maximum	5
Minimum	2
Kurtosis	0,35

- **'Learn tools and strategies to help scale-up their business'**

On average, organizations that have less than 10 people working full time considered that 'Learn tools and strategies to help scale-up their business' was very valuable for the entrepreneur who is part of the generic programs. The most common classification was 4, which means that the most common classification was very valuable. Table II.31 represents the main conclusions.

Table II.31 – Descriptive statistics on 'Learn tools and strategies to help scale-up their business'

	Learn tools and strategies to help scale-up their business
Average	4,15
Standard deviation	0,75
Mode	4
Median	4
Maximum	5
Minimum	3
Kurtosis	-1,04

- **'Discuss their business challenges with experienced mentors'**

On average, organizations that have less than 10 people working full time considered that 'Discuss their business challenges with experienced mentors' was very valuable for the entrepreneur who is part of the generic programs. The most common classification was 4, which means that the most common classification was very valuable. Table II.32 represents the main results.

Table II.32 – Descriptive statistics on 'Discuss their business challenges with experienced mentors'

	Discuss their business challenges with experienced mentors
Average	4,25
Standard deviation	0,72
Mode	4
Median	4
Maximum	5
Minimum	3
Kurtosis	-0,83

- **'Network extensively'**

On average, organizations that have less than 10 people working full time considered that 'Network extensively' was very valuable for the entrepreneur who is part of the generic programs. The most common classification was 5, which means that the most common classification was extremely valuable. Table II.33 represents the main results.

Table II.33 – Descriptive statistics on 'Network extensively'

	Network extensively
Average	4,1
Standard deviation	0,85
Mode	5
Median	4
Maximum	5
Minimum	3
Kurtosis	-1,62

- **'Increase chances to raise money/access funds'**

On average, organizations that have less than 10 people working full time considered that 'Increase chances to raise money/access funds' was valuable/very valuable for the entrepreneur who is part of the

generic programs. The most common classification was 4, which means that the most common classification was very valuable. Table II.34 represents the main results.

Table II.34 – Descriptive statistics on 'Increase chances to raise money/access funds'

	Increase chances to raise money/access funds
Average	3,9
Standard deviation	0,97
Mode	4
Median	4
Maximum	5
Minimum	2
Kurtosis	-0,45

- **'Having access to a working space'**

On average, organizations that have less than 10 people working full time considered that 'Having access to a working space' was valuable/very valuable for the entrepreneur who is part of the generic programs. The most common classification was 4, which means that the most common classification was very valuable. Table II.35 represents the main results.

Table II.35 – Descriptive statistics on 'Having access to a working space'

	Having access to a working space
Average	3,6
Standard deviation	1,19
Mode	4
Median	4
Maximum	5
Minimum	1
Kurtosis	0,60

- **'Prepared to face difficulties or barriers along the way'**

On average, organizations that have less than 10 people working full time considered that 'Prepared to face difficulties or barriers along the way' was valuable/very valuable for the entrepreneur who is part of the generic programs. The most common classification was 3, which means that the most common classification was valuable. Table II.36 represents the main results.

Table II.36 – Descriptive statistics on 'Prepared to face difficulties or barriers along the way'

	Prepared to face difficulties or barriers along the way
Average	3,7
Standard deviation	0,98
Mode	3
Median	4
Maximum	5
Minimum	2
Kurtosis	-0,96

- **'Benefit from accountability (encouraged to report progress to mentors/staff)'**

On average, organizations that have less than 10 people working full time considered that 'Benefit from accountability (encouraged to report progress to mentors/staff)' was valuable/very valuable for the entrepreneur who is part of the generic programs. The most common classification was 4, which means that the most common classification was very valuable. Table II.37 represents the main results.

Table II.37 – Descriptive statistics on 'Benefit from accountability (encouraged to report progress to mentors/staff)'

	Benefit from accountability (encouraged to report progress to mentors/staff)
Average	3,8
Standard deviation	1,06
Mode	4
Median	4
Maximum	5
Minimum	2
Kurtosis	-0,89

II.2.7.2. Less than 50 people working full time *(Sample size: 2 answers)*

It is not relevant to analyse this topic due to the lack of answers

II.2.7.3. Less than 250 people working full time *(Sample size: 0 answers)*

It is not relevant to analyse this topic due to the lack of answers

II.2.7.4 More than 250 people working full time *(Sample size: 0 answers)*

It is not relevant to analyse this topic due to the lack of answers

II.2.8 Popular industries amongst startups in the generic programs in 2015

II.2.8.1 Organizations with less than 10 people working full time *(Sample size: 22 answers)*

The most popular industries amongst startups in the generic programs are: Business & Productivity, Creative industries, Education, Finance (Banking and Fintech), Marketing & Advertising and Tourism. Table II.38 represents the number of organizations that have less than 10 people working full time that have each option as a popular industry in the generic program. The green shading indicates the most popular options.

Table II.38 – Number of organizations that have less than 10 people working full time that have each option as a popular industry in the generic program

	Number of organizations that have less than 10 people working full time that have each option as a popular industry in the generic program
Agriculture & Farm	0
Airline industry	1
Analytics	5
Biotechnology	2
Business & Productivity	9
Chemistry & Farma	1
Cloud Computing	4
Construction	2
Creative industries	7
Education	7
Electronics	3
Energy & Clean tech	5
Entertainment & Leisure	5
Fashion	3
Finance (Banking and Fintech)	7
Food, Beverages & Tobacco	4
Health & Healthcare	3
Insurance	0
Legal services	0

Marketing & Advertising	9
Pets	0
Real Estate	4
Retail & Distribution	6
Sports	2
Telecommunications	3
Tourism	6
Transportation	1

II.2.8.2 Organizations with less than 50 people working full time *(Sample size: 3 answers)*

It is not relevant to analyse this topic due to the lack of answers

II.2.8.3 Organizations with less than 250 people working full time *(Sample size: 0 answers)*

It is not relevant to analyse this topic due to the lack of answers

II.2.8.4 Organizations with more than 250 people working full time *(Sample size: 0 answers)*

It is not relevant to analyse this topic due to the lack of answers

II.3 Profiling: Country

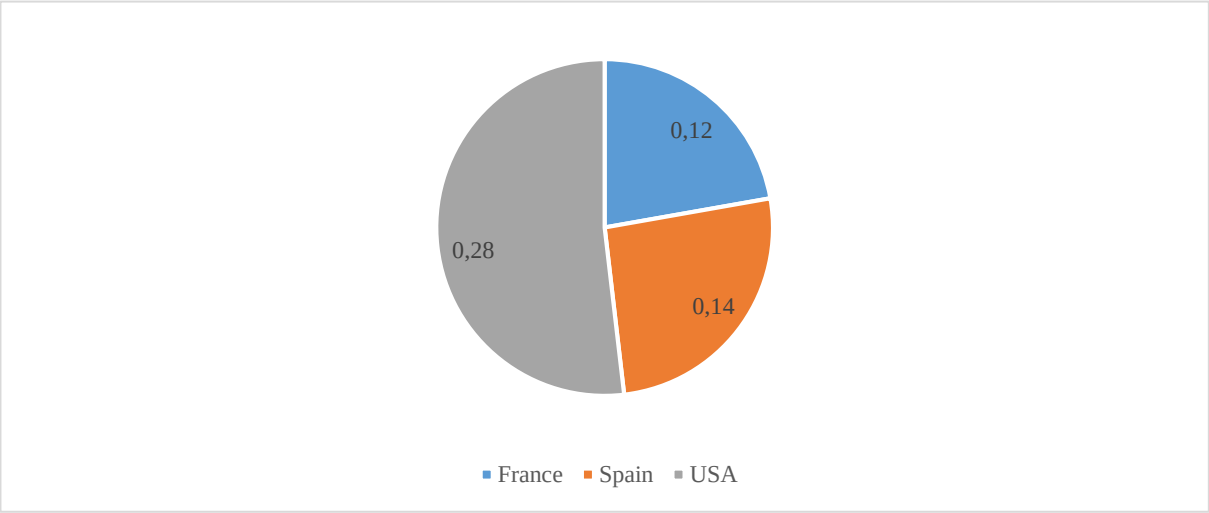
In this profile, the presuppose was to consider the 3 countries that were more relevant considering the total amount of answers. Therefore, the organizations from France, Spain and USA were the ones considered.

II.3.1 Profiling information (*Sample size: 50 answers*)

6 organizations amongst 50 come from France, 7 organizations amongst 50 come from Spain and 14 organizations amongst 50 come from the USA.

Therefore, 12% of organizations come from France, 14% of organizations come from Spain and 28% of organizations come from the USA. Figure II.14 illustrates these results.

Figure II.14 – Percentage of organizations that come from each country



II.3.2 Acceleration in more than one country

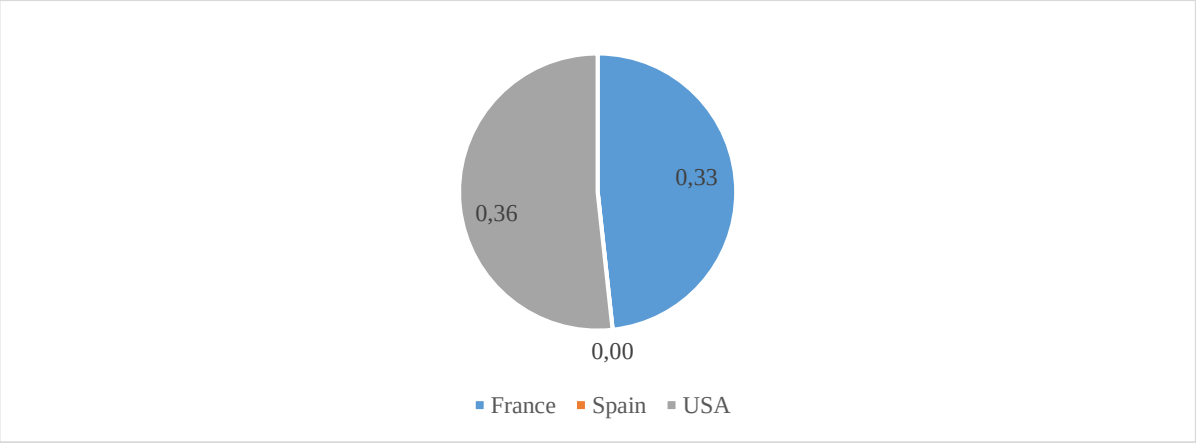
Table II.39 – Sample size for acceleration in more than one country

	Acceleration in more than one country **Number of organizations**
France	6
Spain	7
USA	14
Total	**27**

Considering the organizations that come from France, 2 amongst 6 run acceleration program(s) in more than one country. Considering the organizations that come from Spain, 0 amongst 7 run acceleration program(s) in more than one country. Considering the organizations that come from the USA, 5 amongst 14 run acceleration program(s) in more than one country.

Therefore, 33% of organizations that come from France run acceleration program(s) in more than one country, 0% of organizations that come from Spain run acceleration program(s) in more than one country and 36% of organizations that come from the USA run acceleration program(s) in more than one country. Figure II.15 illustrates these results.

Figure II.15 - Percentage of organizations that run acceleration program(s) in more than one country per country



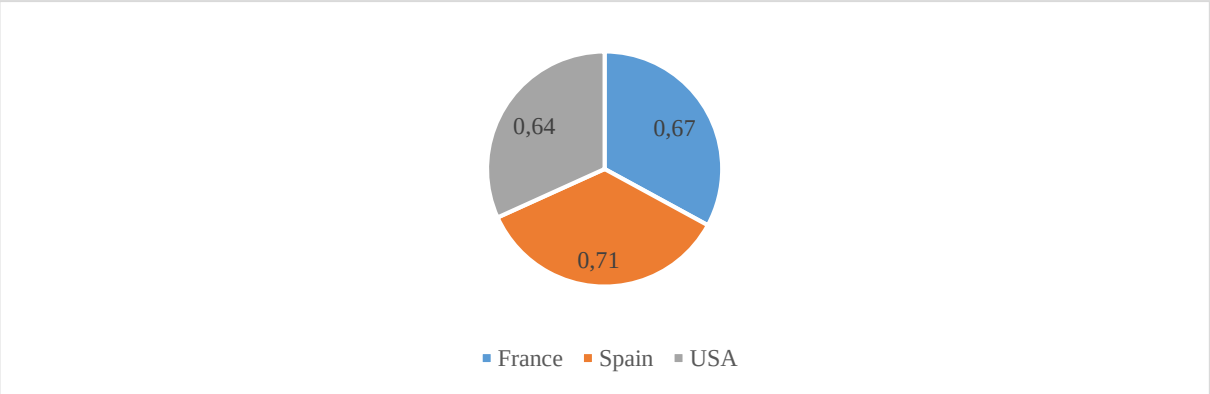
II.3.3 Generic acceleration

Table II.40 – Sample size for generic acceleration

	Generic acceleration **Number of organizations**
France	6
Spain	7
USA	14
Total	**27**

Considering the organizations that come from France, there are 4 amongst 6 that run generic acceleration. Considering the organizations that come from Spain, there are 5 amongst 7 that run generic acceleration and considering the organizations that come from the USA, there are 9 amongst 14 that run generic acceleration. Therefore, 67% of the organizations that come from France run generic acceleration, 71% of the organizations that come from Spain run generic acceleration and 64% of the organizations that come from the USA run generic acceleration. Figure II.16 illustrates these results.

Figure II.16 – Percentage of organizations that run generic acceleration per country



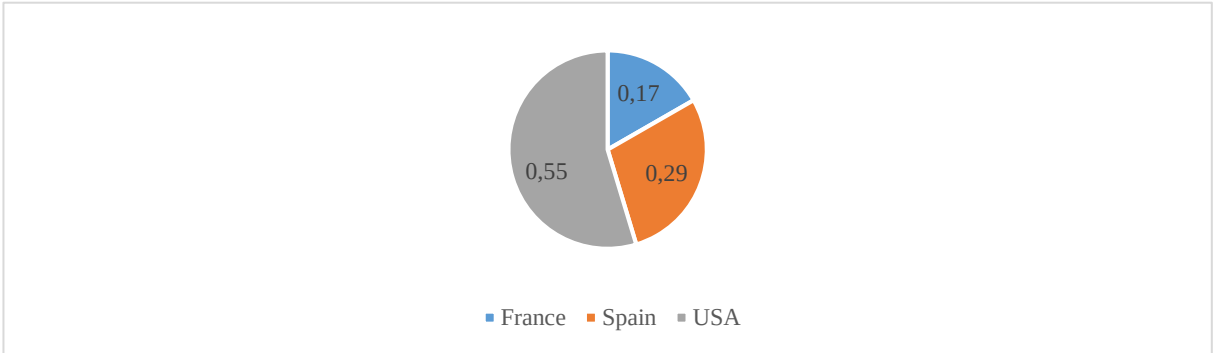
II.3.4 Vertical Acceleration

Table II.41 – Sample size for vertical acceleration

	Number of organizations
France	6
Spain	7
USA	11
Total	**24**

Considering the organizations that come from France, there is 1 organization amongst 6 that runs vertical acceleration. Considering the organizations that come from Spain, there are 2 organizations amongst 7 that run vertical acceleration. Considering the organizations that come from the USA, there are 6 organizations amongst 11 that run vertical acceleration. It is important to note that the USA is the only country, considering this sample of 3 countries, that has more organizations running vertical acceleration that not running it. Therefore, 17% of the organizations that come from France run vertical acceleration, 29% of the organizations that come from Spain run vertical acceleration and 55% of the organizations that come from the USA run vertical acceleration. Figure II.17 illustrates these results.

Figure II.17 - Percentage of organizations that run vertical acceleration per country



II.3.5 Pre-acceleration

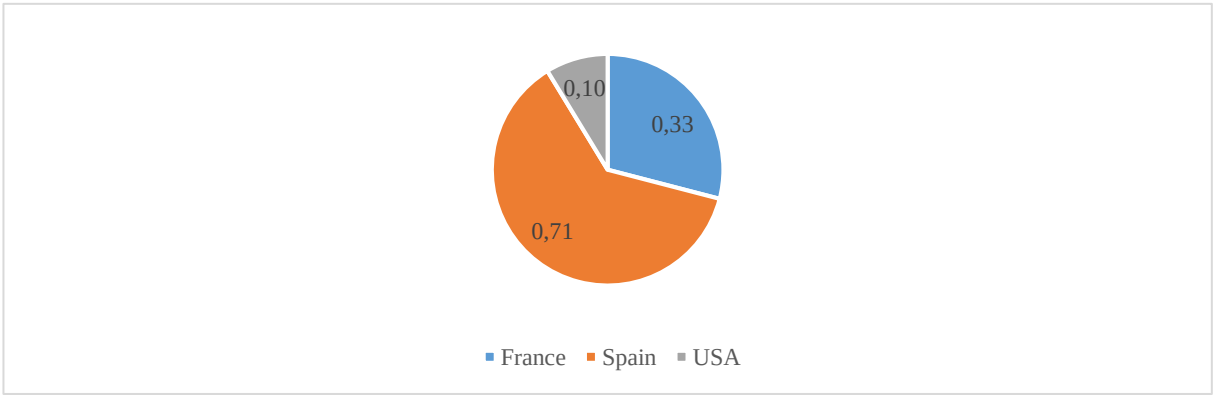
Table II.42 – Sample size for pre-acceleration

	Number of organizations
France	6
Spain	7
USA	10
Total	**23**

Considering the organizations that come from France, there are 2 amongst 6 organizations that run pre-acceleration. Considering the organizations that come from Spain, there are 5 amongst 7 organizations that run pre-acceleration. Considering the organizations that come from the USA, there is 1 organization amongst 10 that runs pre-acceleration. It is important to note that Spain is the only country among the 3 countries considered, that has more organizations running pre-acceleration than not running it.

Therefore, 33% of the organizations that come from France run pre-acceleration, 71% of the organizations that come from Spain run pre-acceleration and 10% of the organizations that come from the USA run pre-acceleration. Figure II.18 illustrates these results.

Figure II.18 – Percentage of organizations that run pre-acceleration per country



II.3.6 Equity in 2015

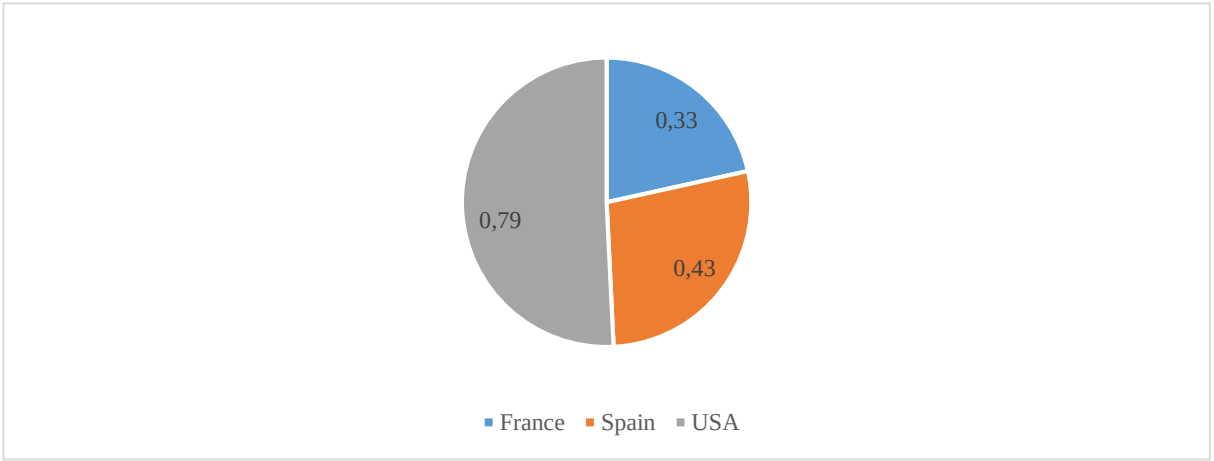
Table II.43 – Sample size for equity in 2015

	Equity in 2015 Number of organizations
France	6
Spain	7
USA	14
Total	**27**

Considering the organizations that come from France, 2 amongst 6 organizations took equity in 2015. Considering the organizations that come from Spain, 3 amongst 7 organizations took equity in 2015. Considering the organizations that come from the USA, 11 amongst 14 organizations took equity in 2015.

Therefore, 33% of the organizations that come from France took equity in 2015, 43% of the organizations that come from Spain took equity in 2015 and 79% of the organizations that come from the USA took equity in 2015. Figure II.19 illustrates these results.

Figure II.19 - Percentage of organizations that took equity in 2015 per country



II.3.7 Value that entrepreneurs get out of generic programs

II.3.7.1 France *(Sample size: 3 answers)*

It is not relevant to analyse this topic due to the lack of answers

II.3.7.2 Spain (*Sample size: 4 answers*)

It is not relevant to analyse this topic due to the lack of answers

II.3.7.3 USA *(Sample size: 4 answers)*

It is not relevant to analyse this topic due to the lack of answers

II.3.8 Popular industries amongst startups in the generic programs in 2015

II.3.8.1 France (*Sample size: 4 answers*)

It is not relevant to analyse this topic due to the lack of answers

II.3.8.2 Spain (*Sample size: 5 answers*)

Considering the organizations that come from Spain, the most popular industries amongst startups in the generic programs are: Analytics, Education, Entertainment & Leisure, Finance (Banking and Fintech), Health & Healthcare and Real Estate. Table II.44 represents the number of organizations from Spain that have each option as a popular industry in the generic program. The green shading indicates the most popular ones.

Table II.44 – Number of organizations from Spain that have each option as a popular industry in the generic program

	Number of organizations from Spain that have each option as a popular industry in the generic program
Agriculture & Farm	0
Airline industry	1
Analytics	2
Biotechnology	0
Business & Productivity	1
Chemistry & Farma	1
Cloud Computing	0
Construction	0
Creative industries	1
Education	2
Electronics	0
Energy & Clean tech	1
Entertainment & Leisure	3
Fashion	1
Finance (Banking and Fintech)	2
Food, Beverages & Tobacco	1
Health & Healthcare	2
Insurance	0
Legal services	0
Marketing & Advertising	0
Pets	0
Real Estate	2
Retail & Distribution	1
Sports	0
Telecommunications	1
Tourism	1
Transportation	1

II.3.8.3 USA (*Sample size: 6 answers*)

Considering the organizations that come from the USA, the most popular industries amongst startups in the generic programs are: Agriculture & Farm, Business & Productivity, Energy & Clean tech, Health & Healthcare, Marketing & Advertising and Telecommunications. Table II.45 represents the number of organizations from the USA that have each option as a popular industry in the generic program. The green shading indicates the most popular ones.

Table II.45 – Number of organizations from the USA that have each option as a popular industry in the generic program

	Number of organizations from the USA that have each option as a popular industry in the generic program
Agriculture & Farm	2
Airline industry	0
Analytics	0
Biotechnology	1
Business & Productivity	3
Chemistry & Farma	0
Cloud Computing	1
Construction	1
Creative industries	1
Education	1
Electronics	0
Energy & Clean tech	3
Entertainment & Leisure	0
Fashion	1
Finance (Banking and Fintech)	1
Food, Beverages & Tobacco	0
Health & Healthcare	3
Insurance	0
Legal services	0
Marketing & Advertising	2
Pets	0
Real Estate	0
Retail & Distribution	1
Sports	1
Telecommunications	2
Tourism	1
Transportation	0

III. Appendix III – Methodology used for the Statistical Inference

In order to run statistical inference on the data, we had to collect as many answers per category as possible. In order to have the highest number of answers possible according to the circumstances, we reduced the number of categories of answers whenever it was reasonable to do so.

III.1 Introductory questions

III.1.1 Identify the country where the organization is based

Originally, there was a total of 50 answers, split into 18 categories of answers, which means that only 18 countries were represented in this survey. There were 2 different strategies to group the observations, which are represented in table III.1.

Table III.1 – Reclassification of the countries

1st Reclassification of the countries	**2nd Reclassification of the countries**
America	USA
North and Central Europe	Other countries
Mediterranean	
Others	

III.1.2 Indicate the number of people working full time at the organization

In this question, the original options were ‘Less than 10 people’, ‘Less than 50 people’, ‘Less than 250 people’ and ‘More than 250 people’. However, the answers were grouped in two different categories, as it is possible to see in Table III.2.

Table III.2 – Reclassification of the number of people working full time at the organization

Number of people working full time at the organization
Less than 10 people
More than 10 people

III.1.3 Identify the nature of the organization

In this question, there were 4 initial options (Private sector, privately held; Private sector, publicly traded; Non-profit sector and Public sector), which were reduced to only 2 categories, as represented in Table III.3.

Table III.3 – Reclassification of the nature of the organization

Reclassification of the nature of the organization
Public sector/mainly public organizations
Private sector/mainly private organizations

III.1.4. Indicate if the organization run acceleration program(s) in more than one country.

In this question, the original categories were considered. Therefore, the categories were 'Yes' and 'No'.

III.1.5 Report the percentage of startups that joined the programs and were not from the country where the accelerator program was taking place

This question had a numerical answer. If the respondent answered a gap of values, the average value was estimated.

III.1.6 Indicate if the organization took or did not take equity in 2015

In this question, the original categories were considered. Therefore, the categories were 'Yes' and 'No'.

III.1.7 Report the amount of equity taken in 2015

This question had a numerical answer. If the respondent answered a gap of values, the average value was estimated. If in the previous question, the respondent had answered that the accelerator did not take equity, the value "0" was introduced in this question, for the same respondent.

III.1.8 Indicate the metrics that the organization uses in order to track progress

In this question, the respondents could choose between a number of options (metrics), and they could select only 1 or more than 1 metric. There was a total of 37 different combinations. There were 2 different strategies to group the observations. The 1st Reclassification of the metrics is based on the content of the metrics itself and the 2nd and 3rd Reclassifications are focused on the number of metrics used by each organization. The reclassification of the metrics is represented in table III.4.

Table III.4 – Reclassification of the metrics

1st Reclassification of the metrics	2nd Reclassification of the metrics	3rd Reclassification of the metrics
• Miscellaneous • Metrics mostly related to the value of the accelerator • Metrics mostly related to the number of startups getting out of the programs • Metrics mostly related to the survival rate of startups	• The organization uses more or less than 2 metrics to track progress	• The organization uses more or less than 3 metrics to track progress

III.2 Generic Acceleration

III.2.1 Indicate if the organization run any generic acceleration program in 2015

In this question, the original categories were considered. Therefore, the categories were 'Yes' and 'No'. If the answer was 'Yes', the respondent was directed to the generic acceleration questions. In case the answer was 'No', the respondent was directed to the beginning of the vertical acceleration part.

III.2.2 Indicate the number of startups that went through the generic acceleration program in 2015

This question had a numerical answer. If the respondent answered a gap of values, the average value was estimated.

III.2.3. Classify the strategic reasons that may have led to the accelerator running the generic program

The respondents had to classify the various options according to the importance they thought each one had. The answers that were incomplete, i.e., that had at least one option left without any classification or the answers that included N/A were not considered for the analysis. Then, the options were grouped into 2 different categories, as represented in Table III.5.

Table III.5 – Reclassification of the strategic reasons

Internal strategic reasons	External strategic reasons
• Acceleration is our core • Identify good investment opportunities for our portfolio • Promote internal cultural change	• Identify good investment opportunities for our clients • Help transfer technology into business • Support growth of the ecosystem

In order to see what the respondent attributed more importance to, the average classification of each category was calculated. In case there was a tie, the median of both categories was calculated. If the tie remained, the method of the max(min) was used, i.e., verify which option had the less minimal classification. In some cases, the ties persisted. In order to have more observations per category, there were also cases in which incomplete answers were taken into consideration, which did not affect the overall result because the only problem arising from this decision was that we would get less robust means, medians or max(min).

III.2.4 Classify different options regarding the value that entrepreneurs got out of the generic program

The respondents had to classify the various options according to the value they thought each one had. The answers that were incomplete, i.e., that had at least one option left without any classification or the answers that included N/A were not considered for the analysis. Then, the options were grouped in 2 different ways, as represented in table III.6.

Table III.6 – Reclassification of the options of the value for the entrepreneur

1st Reclassification	2nd Reclassification
Developing conceptual learning • Learn new tools and methodologies to help structure and develop their business ideas • Learn tools and strategies to help scale-up their business	**Learning tools** • Prepared to face difficulties or barriers along the way • Learn new tools and methodologies to help structure and develop their business ideas • Learn tools and strategies to help scale-up their business • Discuss their business challenges with experienced mentors
Mentorship/Educational components • Discuss their business challenges with experienced mentors • Benefit from accountability (encouraged to report progress to mentors/staff)	**Support to the startups** • Network extensively • Increase chances to raise money/access funds • Have access to a working space • Benefit from accountability (encouraged to report progress to mentors/staff)
Success of the startup in the ecosystem • Network extensively • Increase chances to raise money/access funds • Have access to a working space • Prepared to face difficulties or barriers along the way	

In order to see what the respondent attributed more importance to, the average classification of each category was calculated. In case there was a tie, the median of both categories was calculated. If the tie remained, the method of the max(min) was used, i.e., verify which option had the less minimal classification. In some cases, the ties persisted. In order to have more observations per category, there were also cases in which incomplete answers were taken into consideration, which did not affect the overall result because the only problem arising from this decision was that we would get less robust means, medians or max(min).

III.2.5 Explain the value that stakeholders such as universities, mentors, corporates and investors got out of collaborating with the program

The respondents had to explain the value that 4 different stakeholders (Universities, Mentors, Corporates and Investors) got out of collaborating with the program. These 4 stakeholders were divided into 2 categories, as represented in table III.7.

Table III.7 – Categories created and options included in each category

Categories	Options included in each category
Stakeholders related to the conceptual business	• Mentors • Universities
Stakeholders related to the business practices	• Corporates • Investors

An analysis of the answers given by respondents was carried out. Based on the answers, 3 categories of answers were created, which broadly included what was mentioned by the respondents. These categories are represented in Table III.8.

Table III.8 – Categories created that reflect the answers of the respondents

Categories created that reflect the answers of the respondents
Having access to innovation, talent, latest technology and/or network
Opportunity to contribute to the development of the ecosystem
Having access to investment opportunities

III.2.6 Identify the ways the accelerator got its funding for the program

In this question, there were 4 initial options (public grants, private sponsorship, commissioned to a client and the accelerator's own budget), and the respondents could choose more than one option, according to their own reality. These 4 options were reclassified as it is represented in table III.9.

Table III.9 – Reclassification of the ways to get funding

Reclassification of the ways to get funding
Public/mainly public funding
Private/mainly private funding

III.2.7 Identify the industries that were more popular amongst startups that were part of the program in 2015

In this question, the respondents could choose 1 or more answers from a list containing 27 industries. Then, the industries were divided in two different ways, as represented in table III.10.

Table III.10 – Reclassification of the industries

1st Reclassification	2nd Reclassification
Tourism	Tourism and Services
Services	Clean and Tech
Clean	
Tech	

III.3 Vertical acceleration and pre-acceleration

The questions related to vertical and pre-acceleration were similar to the ones asked in the generic acceleration part of the survey. Because of that, the same procedure used above was used for each question of these parts. However, due to the lack of information and the short amount of answers that each question in those categories had, those parts of the survey were not taken into consideration for the statistical inference.

III.4 Future of acceleration

In this section, the questions related to the future of acceleration are analysed. This includes the priorities that accelerators may have for 2016, as well as the challenges that those entities may have to face in the future and the number of startups in each program in 2016.

III.4.1 Rank the different priorities for 2016 that are presented.

In this question, respondents had to rank the different priorities for 2016 in a scale from 1 to 7, being 1 the top priority and 7 the less important priority. For the statistical inference, only the top 3 priorities were considered, i.e., for each respondent only his 1st, 2nd and 3rd priorities were taken into consideration. Then, each option of the priorities became a category, associated to a number. Then, we identified for each respondent his 1st, 2nd and 3rd priority according to this classification, creating 3 different columns for that purpose. For instance, if the 5th respondent classified "Improve network of mentors" as his 1st priority, then the number 6 (Improve network of mentors) would be placed in the column of the 1st priorities, for that 5th respondent.

III.4.2 Classify the importance of the various challenges for the future that are presented.

The respondents had to classify the various options according to the importance they thought each one had. The answers that were incomplete, i.e., that had at least one option left without any classification or the answers that included N/A were not considered for the analysis. The challenges were grouped in 4 different ways. The reason to design 4 different reclassifications for the challenges was to increase the possibilities of having more relevant statistical results.

The 1st reclassification links the challenges to 3 categories: the performance of the accelerator, the accelerator's elements/resources and the accelerator in the ecosystem. The 2nd reclassification links the challenges to 2 categories: concerns with the startups and the accelerator as an individual organization and part of the ecosystem. The 3rd reclassification links the challenges to other 2 categories: the accelerator itself and the accelerator and elements of the ecosystem. Finally, the 4th reclassification links the challenges to 3 categories: challenges related to the value created, external and internal challenges. These reclassifications are detailed in table III.11.

Table III.11 – Reclassification of the Challenges

1st Reclassification	2nd Reclassification	3rd Reclassification	4th Reclassification
Performance of the accelerator	**Concerns with the startups**	**Accelerator itself**	**Challenges related to the value created**
Measure value delivered	Create global network to help startups go global	Financial sustainability of acceleration business model	Measure value delivered
Build credibility	Attract quality startups	Measure value delivered	Create global network to help startups go global
Optimize internal processes	Attract quality mentors	Build credibility	Attract quality mentors
Financial sustainability of acceleration business model	Attract funding for startups	Optimize internal processes	Attract funding for startups
Accelerator's elements/resources	**Accelerator as an individual organization and part of the ecosystem**	**Accelerator and elements of the ecosystem**	**External challenges**
Create global network to help startups go global	Increase competition in acceleration industry	Increase competition in acceleration industry	Increase competition in acceleration industry
Attract quality startups	Financial sustainability of acceleration business model	Create global network to help startups go global	Attract quality startups
Attract quality mentors	Measure value delivered	Attract quality startups	
Attract funding for startups	Build credibility	Attract quality mentors	
Accelerator in the ecosystem	Optimize internal processes	Attract funding for startups	**Internal challenges**
Increase competition in acceleration industry			Build credibility
			Optimize internal processes
			Financial sustainability of acceleration business model

In order to see what the respondent attributed more importance to, the average classification of each category was calculated. In case there was a tie, the median of both categories was calculated. If the tie remained, the method of the max(min) was used, i.e., verify which option had the less minimal classification. In the first, second and fourth ways to group the options, the ties persisted. The third one had no ties left after applying this method. In order to have more observations per category, there were also cases in which incomplete answers were taken into consideration, which did not affect the overall result because the only problem arising from this decision was that we would get less robust means, medians or max(min).

III.4.3 Report the approximate number of startups that will go through the pre-acceleration programs in 2016

This question had a numerical answer. If the respondent answered a gap of values, the average value was calculated.

III.4.4 Report the approximate number of startups that will go through the generic programs in 2016

This question had a numerical answer. If the respondent answered a gap of values, the average value was calculated.

III.4.5 Report the approximate number of startups that will go through the vertical programs in 2016

This question had a numerical answer. If the respondent answered a gap of values, the average value was calculated.

III.4.6. Indicate if the accelerator may or may not take equity in 2016

In this question, the original categories were considered. Therefore, the categories were ‘Yes’ and ‘No’.

III.4.7 Report the typical amount of equity that will be taken by your accelerator in 2016

This question had a numerical answer. If the respondent answered a gap of values, the average value was calculated. If in the previous question, the respondent had answered that the accelerator did not take equity, the value “0” was introduced in this question, for the same respondent.

III.4.8 Indicate if the organization plans to do acquisitions or mergers of other organizations in the future

This question was not considered for the statistical inference analysis due to the lack of relevant information.

IV. Appendix IV – Correlations founds using the Kendall Tau-b coefficient

This Appendix includes the various correlations that were found using the Kendall Tau-b coefficient, considering different sized samples, that confirmed the results obtained among them.

- Correlations marked with an * are significant for a level of significance of 5%;
- Correlations marked with ** are significant for a level of significance of 1%;
- Correlations that are not marked are significant for a level of significance of 10%.

Variable 1	Variable 2	Correlation	Meaning
Accelerators that are from the USA or from other parts of the world	Accelerators that use more or less than 3 metrics	,683*	Accelerators from the USA generally use more than 3 metrics and accelerators from other countries use less than 3 metrics
Number of people working full time (more or less than 10 people)	Accelerators that run or not acceleration program(s) in more than one country	-,632*	Accelerators that have less than 10 people usually do not run acceleration programs in more than one country, and accelerators that have more than 10 people tend to run those programs
Number of people working full time (more or less than 10 people)	Number of startups in the generic programs in 2016	,559*	Accelerators with more than 10 people tend to have more startups taking part in the generic programs;
Number of people working full time (more or less than 10 people)	Variation of the number of startups in the generic programs between 2016 and 2015	,563*	The variation is more significant for the accelerators that have more than 10 people.
Nature of the organization (public or private)	Funding of the generic programs (public or private)	-,667*	Public organizations tend to look for private funding and

			private organizations tend to look for public funding
Nature of the organization (public or private)	Accelerators' views on challenges related to the value created, external and internal challenges	,583*	Public accelerators are more worried about challenges related to the value created, while private organizations are more concerned about internal challenges
Accelerators that are from the USA or from other parts of the world	Funding of generic programs (public or private)	0,57735	Accelerators from the rest of the world usually have public funding and accelerators from the USA have private funding
Nature of the organization (public or private)	Number of startups in the generic programs in 2015	-0,4375	Public accelerators have more startups in the generic programs in 2015, when compared to private accelerators
Nature of the organization (public or private)	Industries that startups may be focused on (Tourism and Services/Clean and Tech)	-0,50709	Public organizations have startups whose businesses are mostly focused on Clean and Tech industries and private organizations have startups whose businesses are mostly focused on the Tourism and Services industries
Accelerators that are from the USA or from other parts of the world	Accelerators' views on challenges related to the value created, external and internal challenges	-,561*	Accelerators that are not from the USA are more concerned about internal challenges, while accelerators that are from the USA are more concerned about challenges related to the value created
Accelerators that are from the USA or	Number of people working full time	,491*	Accelerators that are not from the USA usually have less than

from other parts of the world	(more or less than 10 people)		10 people working full time at their organizations and the accelerators from the USA tend to have more than 10 people working full time
Nature of the organization (public or private)	Accelerator taking or not equity in 2015	-,734**	Private organizations tend to ask for equity, while public organizations do not usually ask for equity
Accelerators that are from the USA or from other parts of the world	Accelerators that use more or less than 2 metrics	0,428571	Organizations that are not from the USA generally use less than 2 metrics to evaluate success and the organizations from the USA tend to use more than 2 metrics
Accelerators that are from the USA or from other parts of the world	Accelerator running or not generic acceleration in 2015	0,377964	Organizations that are not from the USA tend to run generic acceleration, whereas organizations from the USA tend not to do so
Number of people working full time (more or less than 10 people)	Variation of the number of startups between 2016 and 2015	0,367607	The variation is more significant for the accelerators that have more than 10 people.
Number of people working full time (more or less than 10 people)	Accelerators' views on challenges related to the accelerator itself of elements of the ecosystem	-,500*	Accelerators with less than 10 people are more worried about challenges related to the accelerator and elements of the ecosystem, while accelerators that have more than 10 people are more concerned about the challenges related to the accelerator itself

Nature of the organization (public or private)	Accelerator taking or not equity in 2015	-,734**	Public organizations do not usually ask for equity, while private organizations ask.
Nature of the organization (public or private)	Accelerators' views on challenges related to the value created, external and internal challenges	,603** ,583*	Public accelerators are more worried about challenges related to the value created, while private organizations are more concerned about internal challenges
Accelerators that are from the USA or from other parts of the world	Accelerators that use more or less than 2 metrics	0,428571	Organizations that are not from the USA generally use less than 2 metrics to evaluate success and the organizations from the USA tend to use more than 2 metrics
Nature of the organization (public or private)	Accelerators' views on challenges related to the accelerator itself of elements of the ecosystem	-0,4	Private accelerators are more concerned with challenges related to the accelerator itself, while public accelerators are more interested in challenges related to the accelerator and other elements of the ecosystem
Accelerators that are from the USA or from other parts of the world	Number of people working full time (more or less than 10 people)	,367*	Accelerators that are not from the USA have less than 10 people working full time, whereas accelerators from the USA tend to have more than 10 people working full time
Accelerators that are from the USA or from other parts of the world	Accelerator taking or not equity in 2015	-,346*	Accelerators that are not from the USA usually do not ask for equity, while the accelerators from the USA tend to ask for equity

Accelerators that are from the USA or from other parts of the world	Accelerators that use more or less than 2 metrics	,428**	Organizations that are not from the USA generally use less than 2 metrics to evaluate success and the organizations from the USA tend to use more than 2 metrics
Accelerators that are from the USA or from other parts of the world	Accelerators that use more or less than 3 metrics	,515**	Accelerators that are not from the USA generally use less than 3 metrics and the accelerators from the USA use more than 3 metrics
Number of people working full time (more or less than 10 people)	Accelerator taking or not equity in 2015	-,349*	Accelerators that have less than 10 people usually do not ask for equity, while accelerators with more than 10 people tend to ask for equity
Number of people working full time (more or less than 10 people)	Accelerators that use more or less than 2 metrics	,359*	Accelerators that have less than 10 people tend to use more than 2 metrics, while organizations with more than 10 people generally use less than 2 metrics
Nature of the organization (public or private)	Percentage of startups that are not from the country where the accelerator program was taking place in 2015	,361**	The private sector has more international startups taking part in the programs, when compared to the public sector.
Nature of the organization (public or private)	Accelerator taking or not equity in 2015	-,545**	Public accelerators tend not to ask for equity and private accelerators ask for equity
Number of people working full time	Accelerator running or not acceleration	-0,26726	Accelerators that have less than 10 people usually do not run

(more or less than 10 people)	program(s) in more than one country		acceleration programs in more than one country, and accelerators that have more than 10 people tend to run those programs
Number of people working full time (more or less than 10 people)	Accelerator running or not generic acceleration in 2015	0,27296	Accelerators that have less than 10 people tend to run generic acceleration, while accelerators that have more than 10 people tend not to run generic acceleration